

MATERNITY AND CHILD CARE

GALLAND



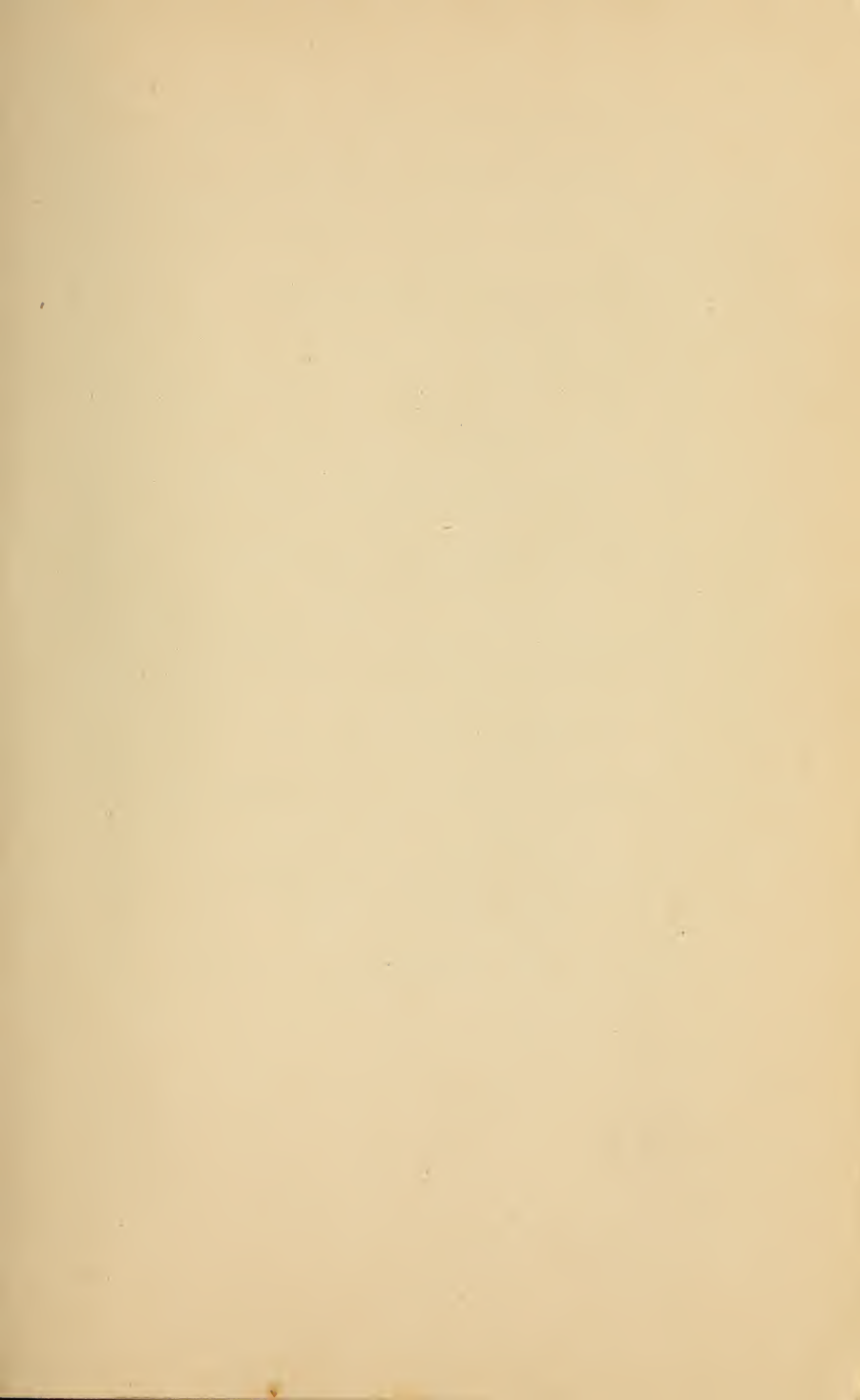
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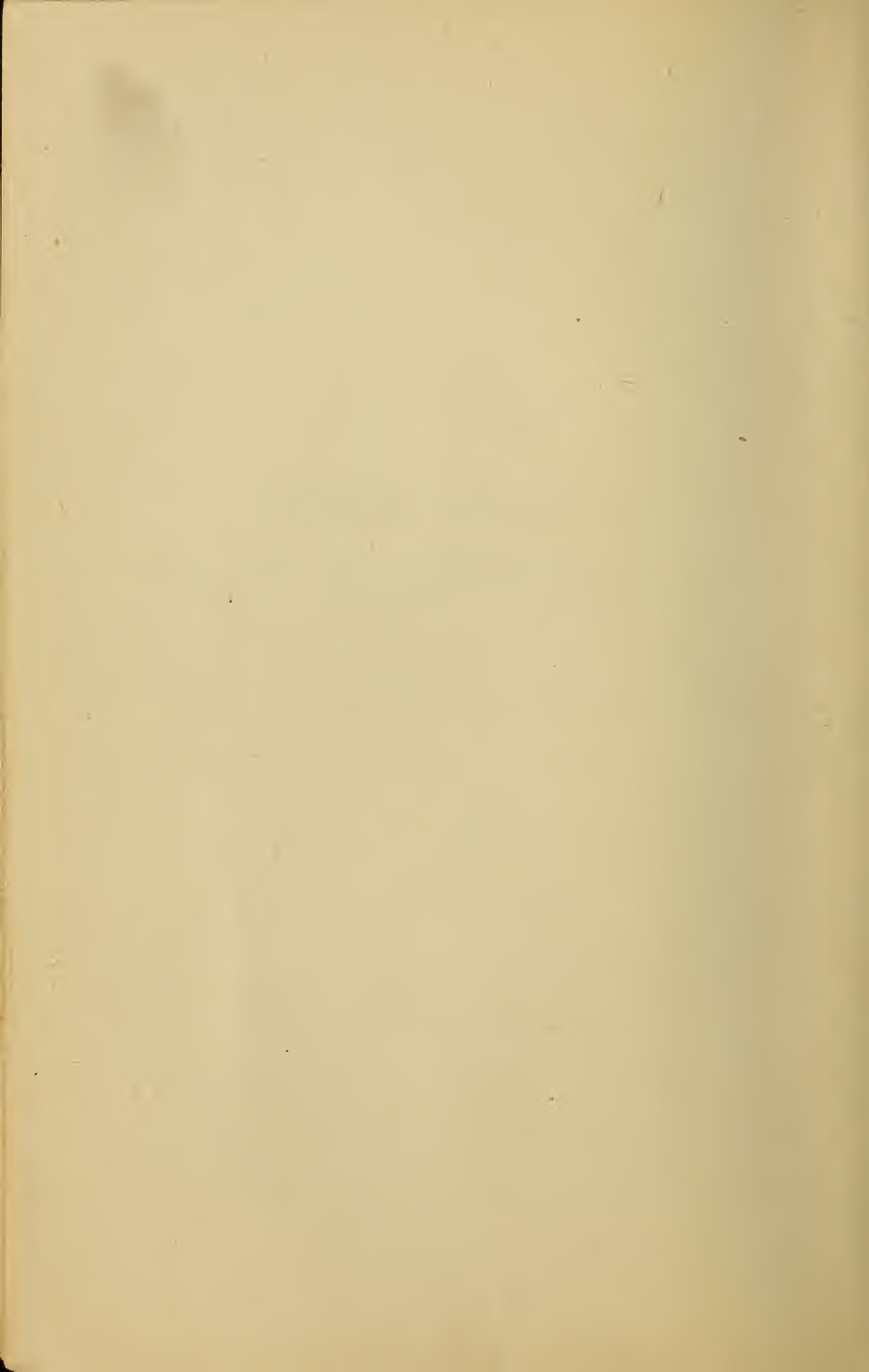
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The Parent's Library

A series of practical books relating to the care and culture of the young, published under the editorial supervision of Professor M. V. O'Shea of the University of Wisconsin, Educational Director, and Mr. Paul E. Watson, Editorial Director, of *Mother's Magazine and Home Life*, in coöperation with which magazine this Library has been prepared.



PREFACE

Prevention is our watchword of today. To stamp out disease, we must prevent it. How? With knowledge. Knowledge is the cornerstone on which our life-saving stations must be built. Superstitions and wrong teachings must be thrust away with the discarded ideas of the past, for this is a new age of health.

Our National Conservation Commission reports that forty out of every hundred premature births can be prevented; that forty out of every hundred cases of congenitally weak babies can be avoided; and that seventy out of every hundred babies whose eyes are infected at birth can be saved this misfortune. This Commission reports that nearly half of the babies who do not survive the first year of life die from conditions existing before or at the time of their birth and that these conditions may be prevented if the mother can be reached and told what she should know, and what, in the vast majority of cases, she is anxious to learn.

Added to these figures of needless waste of child-life, are the appalling figures of the thousands of mothers whose lives are sacrificed annually through lack of knowledge and proper

PREFACE

care during the time when they are fulfilling their highest destiny, that of motherhood.

Read these figures and you have the reason why this book is written. It is written in the hope that it may carry the truths that make for safe motherhood; carry them in so simple a language that, wherever needed they may be plainly understood by every prospective mother. And thus, every child of the home into which this book goes may receive through its message more of the benefits that modern medical science has to offer.

WILLIAM HERBERT GALLAND

Glengary,
Mount Airy,
Croton-on-Hudson.

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MATERNITY AND CHILD CARE

CHAPTER I

THE STORY OF REPRODUCTION

In telling the story of reproduction, let us first consider the anatomy of the organs of reproduction and their duties. We have the ovaries, of which there are two; the fallopian tubes, also two in number; the uterus or womb; and the vagina; all situated in the pelvis which is the basin-like ring of bone at the lower extremity of the trunk supporting the spine and resting on the lower limbs.

The vagina is the canal extending from the vulva to the cervix or neck of the uterus. From the upper and outer sides of the uterus extend the two fallopian tubes, one passing to the right and the other to the left like two outstretched arms. These tubes are about the size of a lead pencil and about four and a half inches long. They are covered on the outside with the same smooth layer of membrane that covers all of the organs of the abdominal cavity.

The fallopian tubes are hollow and lined with a delicate mucous membrane quite similar to that lining the nose and throat. Growing out of this lining in a most interesting way are minute, vibrant, hair-like processes in constant wave-like motion which sweep everything that comes into the tubes on into the uterus. The outer ends of the tubes flare like little trumpets, but where they empty into the uterus they diminish to a size that admits the passage of no substance larger than a coarse hair. Fine muscles make up the walls of these tubes and the purpose of these muscles is, when in normal condition, to prevent the tubes from collapsing.

Just about midway, below and behind each fallopian tube, are the two ovaries, one on each side. Approximately the size of a prune, these are the most interesting organs of the human body. The ovaries are not at the end of the tubes opening directly into them as commonly believed, but at the center. Each ovary is held to the side of the uterus by a firm short ligament, and is covered by a smooth thin tissue which performs two important duties.

Within each ovary at the time of birth of the girl baby, are many thousands of infinitely tiny ova or eggs. It has been estimated that there are forty thousand divided about equally between the two ovaries. These minute ova begin to ripen at the time of puberty and this process

continues actively until the menopause or "change of life."

The second great function of the ovaries is the manufacture and elaboration of a secretion which passes directly into the woman's blood and has a controlling influence over menstruation and a direct bearing upon the general health.

The ovum lies within the ovary in a diminutive sac which is lined with a single layer of cells. As the ovum ripens, these cells multiply and the fluid contained in the sac increases. This structure is called a graafian follicle and as the follicle grows, it pushes its way up to the outer wall of the ovary until the ovum is entirely ripened. Then the follicle bursts through the thin walls of the ovary and the ripened ovum is thrown upon the smooth lining of the abdominal cavity. Through some force not clearly understood, the ovum travels outward until it reaches the end of the fallopian tube and there it is caught up by the hair-like processes and swept through the tube into the uterus or womb.

This process undoubtedly takes place just before menstruation. In most instances, an ovum is probably discharged at one menstrual period and another from the other ovary at the following period. An ovum discharged from each ovary at the same time accounts for twin births. If three or four ripen at the same time, we have the phenomenon of triplets or quadruplets.

The uterus, into which the fallopian tubes empty, is pear shaped and about three and one-half inches long. The upper or more dilated part is known as the fundus; the smaller end where it diminishes into the neck, emptying into the vagina, is called the cervix.

The outer surface of the uterus is composed of the same smooth membrane which covers the other organs. The walls are made up of powerful muscles, and the inner lining is a delicate and smooth mucous membrane called the endometrium. This inner membrane, like the lining of the fallopian tubes, is covered with the delicate, vibrating hair-like processes which have a constant waving motion downward and outward toward the vagina. If the ovum fails to become impregnated or fertilized it is this motion that sweeps it out of the uterus into the vagina.

The uterus is suspended in the pelvis by strong ligaments. The body or the fundus is held forward so that the neck or mouth of the womb points backward to the posterior wall of the vagina the upper end of which closes around the neck of the womb. Just below the mouth of the womb in the upper posterior wall of the vagina is a cup-like depression where the spermatozoa are deposited and where they may remain for some time, ready to gain entrance to the mouth of the uterus.

From the standpoint of anatomy and physi-

ology, there are many causes of sterility. The ovum may not ripen properly, or the covering of the ovary may become so firm and thickened from inflammation that the graafian follicle cannot burst through, with the result that the ova are held imprisoned beneath the covering of the ovaries and form little cysts. Again, an inflammation in the pelvis may be so severe as to completely close the outer ends of the fallopian tubes so that the ripened ova cannot gain entrance to the uterus. Acute inflammation of the pelvis may produce adhesions which kink or twist the tubes, doubling up and completely closing them so that the progress of the ova through the tubes is checked. Diseases or inflammations which roughen the smooth lining of the uterus itself may cause sterility, this being quite common. Tumors growing in the walls of the uterus and making them irregular and rough are frequent causes of sterility.

The lining of the body of the womb constantly secretes a watery substance, just as does the mucous membrane of the mouth. This keeps the lining of the womb moist. The lining of the lower part or mouth of the womb throws off a heavier, more viscid secretion. At times this may become very acid, as in certain types of leucorrhoea, and this acidity may be the means of rendering the spermatozoan inactive, resulting in sterility.

MENSTRUATION

Just before the time for menstruation, the membrane lining the uterus grows thicker. This is brought about by a secretion of the ovaries which is thrown into the mother's blood and has a direct action on the uterus. The lining membrane swells if it becomes fertilized in order to make a soft nest for the ovum and its blood vessels become gorged. If the ovum is fertilized it imbeds itself upon this lining and throws out a secretion which prevents menstruation. If the ovum fails to become fertilized all the tiny engorged blood vessels break, bleeding occurs, the congestion is relieved and the membrane returns to normal. This is the process of menstruation.

When each menstruation period is passed there are a few days of rest and then the membrane again begins to slowly thicken and prepare itself for the next possibility of impregnation. The secretion from the ovaries not only acts upon the uterus but upon the entire system. It first produces a congestion of all the mucous membranes of the body, those lining the nose and throat and stomach also becoming thickened like the lining of the uterus. Some women are made irritable, cross, nervous and restless; some, on the other hand, are made depressed, listless and sleepy. Many notice a fullness of the breasts, with the same sensation in the pelvis; oftentimes with pain

in the back which radiates down the limbs. Fortunately there are many women who go through life with little or no discomfort.

Painful Menstruation.—The pain may become severe either before this period, during menstruation, or directly afterward. Constantly, the womb keeps up a gentle contraction and expansion and this provides exercise for the muscles. When the opening of the womb is very small and if clots of blood form in the uterus, the effort of expelling them at the time of menstruation causes pain.

Another cause of painful menstruation is a displacement of the pelvic organs. From childbirth, or from the strain of constant heavy lifting or from a fall, the ligaments which support the pelvic organs become relaxed, allow the uterus to fall downward and tip backward, and thus cause a drag upon the wonderful and intricate plexus of nerves in the pelvis.

The functions of menstruation, of child-bearing and recovery after labor, and of nursing, are all a supreme tax upon the general physical health of the woman. Too much rest and care cannot be given at these critical times.

IMPREGNATION

In the ovum is a tiny vital spot which is the nucleus, the spark of life. It is surrounded by a yolk which is its food.

The spermatic fluid of the male contains numberless tiny cells, each having a minute vital spot or nucleus. Attached to the nucleus is a slender hair-like process in constant wavelike motion which keeps the male cells steadily sweeping forward. This movement is so active that the male cells are driven upward over the lining of the womb, even against and beyond the small waving cilia which cover the lining and which are constantly sweeping downward whatever comes in their path. The male cells travel through the tubes and lie in wait for the ovum.

Like the ovum, the vital male cell soon dies if left alone. It is very delicate and at the time of cohabitation is deposited in the pouch in the vagina at the mouth of the womb.

When the tiny male cells at last enter the fallopian tubes to wait for the ovum, they may live for many days. They possess some strange power of attraction for each other and quickly fuse; the tiny, vital male element directly penetrating the female ovum. The fine, tail-like process is lost and the moment this union takes place rapid growth begins.

From the union of the female with the male nucleus there develops one live cell, which quickly divides into two, four, and eight, and so on at a tremendous rate into thousands of cells which form a shell or covering to surround the fetus during its growth in the uterus. These cells

arrange themselves into groups within this covering, they take on special functions and finally form the organs of the newly developing body.

Just as soon as the female and the male vital elements have joined and started their growth, the hair-like processes lining the fallopian tubes sweep this united cell into the uterus whose lining membrane has been preparing to receive the impregnated or fertilized ovum. Rarely, the ovum is caught inside the tube before it can reach the uterus, and there starts to grow, producing what is known as a tubal, or an ectopic pregnancy.

When the impregnated ovum reaches the uterus under normal conditions, the fertile ovum settles into the soft swollen lining and menstruation does not occur. But if the ovum fails to become fertilized it is swept out of the uterus, the tiny engorged blood vessels rupture, menstruation occurs and the swollen membrane is relieved of its congestion.

Many things can happen to prevent even the fertilized ovum from finding a suitable home in the lining of the womb. Either tumors or chronic inflammations may so roughen the surface that the ovum cannot attach itself to the membrane. Again, it may arrive in the uterus before the lining is prepared and consequently fail to find ready the right place in which to grow. It may become loosened from its attachment and some-

times be immediately thrown off, menstruation making its appearance at the usual time and carrying it out. Or the ovum may lodge in the membrane for a time and then be detached. This explains why menstruation is sometimes delayed for several days or for two or three weeks.

CHAPTER II

THE EMBRYO'S GROWTH AND FOOD

The fertilized ovum attaches itself to the swollen lining of the uterus by a remarkable process. The covering formed by the cells is well started by the time the ovum reaches the uterus. It secretes a substance which destroys or absorbs some of the cells in the lining of the uterus at one small spot. This forms a nest in which the ovum burrows. The rest of the lining grows gradually thicker and richer in blood vessels and actually grows over the ovum in its nest. This new, thickened membrane we call the decidua. In addition to the secretion which we have just mentioned the ovum throws out another secretion which prevents menstruation from occurring and washing out this new life.

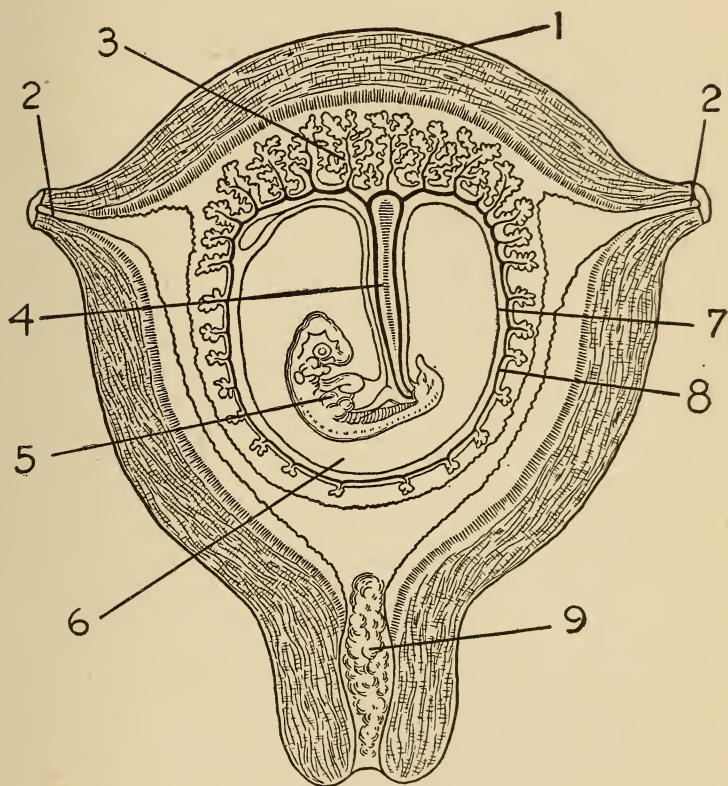
Right at the spot where the ovum attaches itself to the lining of the uterus, there develops that important membrane, the placenta, through which the embryo breathes and receives its food until birth.

The outer covering or shell for the embryo begins to develop as soon as impregnation occurs and the cells making up this covering grow so

rapidly that the embryo is very shortly entirely surrounded by two complete layers or membranes. The outer layer is the chorion; the inner layer, the amnion. The sac itself, made up of these two layers in which the tiny embryo is rapidly developing, is filled with a watery secretion called the amniotic fluid. This rapidly increases in amount as the sac grows, and forms what is known as "the bag of waters" at the time of birth.

This fluid serves four purposes: it forms a cushion of water around the fetus which protects it from injury through any jar or blow to the abdomen; through pressure from tight corsets or clothing; or through sudden changes of temperature, and it forms the "bag of waters" which is so important in dilating the mouth of the womb at the time of labor.

Now let us again turn attention to the outer envelope or the chorion. The cells which make up this layer begin to grow outward, projecting like fingers or the branches of a tree. There are thousands of these processes, called villi, and just where the little embryo has sunk into the lining of the uterus, they develop in great numbers and grow to greater length and size than the villi covering the rest of the sac. They extend right through the blood vessel walls of the membrane lining the uterus and are thus bathed in the mother's blood. This is the way in which



Cross Section of Pregnant Uterus

(After Allen Thompson)

This Diagram Shows the Relations of the Uterus, the Embryo, and the Embryonic Structures at the Second Month of Gestation. 1—Wall of uterus. 2—Beginning of fallopian tube. 3—Placenta showing branches of villi. 4—Umbilical cord. 5—Fetus. 6—Amnionic fluid or "bag of waters." 7—Amnionic membrane. 8—Chorionic membrane. 9—Cervix or mouth of uterus.

the "mother cake," the placenta or "after-birth" as it is also called, is formed.

At this point within the sac the embryo is growing and becomes attached to the placenta by a tiny tubular membrane which becomes the navel cord. This navel or umbilical cord enters the body of the fetus at the center of the abdomen. Blood vessels are later formed within this cord, one of which carries the blood from the placenta to the fetus and two of which carry the blood from the fetus to the placenta. Before the blood vessels form, the embryo absorbs nourishment directly from the placenta.

You can readily see from the accompanying illustration just how the embryo lies within its sac suspended by the umbilical cord and surrounded by the amniotic fluid. You will notice that the sac at one point has grown solidly into the wall of the uterus connected by the villi or branches of the placenta. The sac hangs in the cavity of the uterus and grows with great rapidity, the water constantly increasing until by the third month the sac completely fills the uterus, becoming attached to the lining membrane on all sides.

During this time the fetus and the entire womb have steadily grown larger. Until the entire lining of the uterus is covered by the sac, some blood may make its appearance at the regular menstrual periods. This is rare, however, as

menstruation normally ceases entirely when pregnancy occurs.

Any bleeding that may be noticed after the third month probably comes from the place where the placenta is attached and must be heeded. It may mean that contractions of the uterus have slightly loosened the placenta and there is possible danger of miscarriage.

Of the blood vessels which develop in the umbilical cord, two are veins and one an artery. These pass directly from the placenta to the body of the fetus, entering at the navel. The circulation of blood begins as soon as the heart in the developing fetus starts to beat. These heart beats can be heard as early as the fourth month, but it must be remembered that actual life in the embryo begins at the time of conception.

The villi are covered by a thin flat layer of cells and these cells separate the mother's blood from the blood of the placenta, and through them the food and oxygen needed by the fetus for life and growth are filtered. Thus, the blood of the mother does not flow directly into the blood of the fetus, or the blood of the fetus into that of the mother. After the food and oxygen in the mother's blood has been filtered through these cells and have been taken up by the blood of the placenta, they are collected in these converging blood vessels at one point, emptied into the artery in the umbilical cord, carried to the arter-

ies which have formed in the fetus and thence circulated by the pumping of the fetus heart to all the organs.

With growth of any kind there is waste matter. After the baby is born it gets rid of this waste through the lungs, kidneys, bowels and skin. While the fetus is growing in the uterus this waste is collected into the baby's veins and these veins, converging, empty into the two veins of the umbilical cord. Thus the waste is carried out through the placenta to the villi where it seeps back into the mother's blood through the same cells, just as the nourishment was filtered in.

The placenta also takes the place of lungs as no air is received into the baby's lungs until birth.

The waste is gotten rid of through the mother's skin and lungs and bowels but mostly through the kidneys. Remember this as it explains why so much attention must be given to the kidneys during pregnancy.

It is difficult for the mother to transmit actual disease to the baby in her uterus, because no solid substance can pass through the layer of cells which separate the blood of the fetus from that of the mother. Bacteria circulating in the mother's blood, such as the germs of tuberculosis and typhoid fever, cannot pass through these cells so long as they remain intact.

GROWTH

Now that we have learned the way in which the ovum starts its growth, how it is protected and nourished, let us determine how it takes its shape and the rate of its development.

During the first six weeks of its life the fertilized ovum is known as the embryo. At the end of the fourth week, the embryo is about the size of a pigeon's egg; at the end of the second month it is the size of a hen's egg and human shape can be discerned without the aid of a magnifying glass if the embryo is expelled at this time. At the twelfth week the embryo is slightly larger than a goose egg and the sex can be distinguished.

After the sixth week it is proper to drop the term embryo and name the developing life, the fetus. After the twentieth week growth is very rapid. The rate is the same in all mothers regardless of physical characteristics.

APPROXIMATE GROWTH OF FETUS

Months	Length in Inches	Weight in Pounds
7	15 to 17	3½ to 4
8	16½ to 19	3¾ to 5¾
9	19 to 21	6½ to 8

The first baby is usually smaller than subsequent children. The average birth weight approximates seven pounds and three ounces,

but full term babies commonly range in weight from six to ten pounds. Exceptional cases are reported where babies have weighed more and even less than these figures.

The mother who is overworked and poorly nourished is very liable to have a baby whose weight is below the average. This is also true of small women. The mother who exercises little and eats heartily is prone to have a baby weighing eight or nine pounds or even more.

Throughout pregnancy the uterus keeps up the gentle contraction and expansion and while this is mild it is sufficient exercise to keep up the strength and tone of the muscles, which qualities are so necessary at the time of labor. As the uterus enlarges it rises slowly out of the pelvis and by the fourth month it can be felt just above the pelvic bones. At about the middle of the fourth month or a little later, the woman pregnant for the first time, feels life. Often-times this first movement is not recognized. When it is noticed the mother describes it as a slight fluttering and it becomes more pronounced until the "little kicks" can be felt and seen against the side of the abdomen. In a second or later pregnancy life is usually recognized earlier than in the first pregnancy.

By the fifth month the physician's practiced ear can hear the heart beat faintly and this is

very distinct by the sixth month. The heart of the fetus beats about twice as fast as that of the mother.

By the fifth month the uterus has risen up halfway between the pelvic bones and the navel; by the seventh month it is three or four fingers above the navel; and by the eighth month it has risen as high as the cartilage at the end of the breast-bone. The last two weeks of pregnancy the uterus begins to sink. This movement is described by the mother as "settling."

When the full term has been reached the uterus has assumed the shape of an immense egg. The walls of the sack containing the baby are attached to the entire lining of the uterus except at one point directly over the mouth of the uterus where the sac is simply stretched across. At the place where the ovum first nested itself, the lining has become greatly thickened. Here is attached the placenta which has grown to the circumference of a dinner plate and about an inch in thickness. It is about one-sixth of the weight of the baby.

The sac in which the baby floats is now fully distended with the amniotic fluid or "bag of waters." The umbilical cord is now about twenty-four inches long. The fetus is usually found lying with the head down, and flexed so that the chin touches the chest. The back is bent

forward, the arms are crossed just below the chin, the knees doubled up in front of the abdomen, and in this position the fetus is ready to be delivered.

SEX

Nothing can be done to influence sex, nor is there any way of telling the sex, before the baby is born. The theory has been advanced that the rate of the heart-beat is a determining factor, but this is in no way reliable. The most plausible theory is that the male element is the determining factor. It is maintained that part of the male cells contain the female germ plasm and part the male germ plasm, these cells being equally divided in the male generative organs. Based upon this theory the births of males and females would be equal. Statistics bear this out with a slight variation.

TWINS

In approximately one out of every ninety pregnancies, twins occur. Heredity seems to have a decided influence in the birth of twins. Records show that twins appear in the same family for several generations. We have traced two causes for twin births. One is the case of two ova being impregnated at the same time by two different male elements, and by this double fertilization we may get twins of both sexes, a

boy and a girl born at the same time. The other case is of the single fertilized ovum that divides into two separate groups of cells, giving us twins of the same sex closely resembling each other.

CHAPTER III

SIGNS OF PREGNANCY

Pregnancy is a perfectly normal condition and there is no occasion for alarm or apprehension when the first signs make their appearance. The first and most important thing to be done is to place yourself at once in the care of your physician. This is because the troubles that develop during pregnancy and at the time of confinement have, as a rule, very small and many of them early beginnings. So slight are the beginnings of these troubles that only the practiced eye of the physician can detect them at the start. He can set about their immediate correction.

The early signs of pregnancy are known to nearly every woman and she can usually tell when she is pregnant before seeking the advice or examination of her physician. Mistakes are many times made, however, because signs which are associated with pregnancy and are usually considered infallible may be the indications of other conditions entirely foreign to this.

The first group of signs can only be called probable or presumptive signs. The second group is made up of the positive signs and do

not make their appearance until after the first signs.

Of the probable signs there are four: the cessation of menstruation, the changes in the breasts, morning sickness and the frequent or painful urination.

The stopping of menstruation is always the first symptom of pregnancy to attract attention if it happens during the child-bearing period. There are other conditions, however, which are in no way associated with pregnancy which may cause temporary cessation of menstruation. While pregnancy may occur at any time during the month, it more often takes place just before or just after the menstrual period.

The conditions which cause menstruation to cease temporarily are most often known to a woman and she is not apt to confuse them with a sign of pregnancy.

The change of life, or menopause, usually begins with irregularity of the monthly periods. This is quite frequently mistaken for a sign of pregnancy, but rarely does pregnancy occur at this time. Any acute or chronic disease of the ovaries or womb may suppress menstruation for an indefinite period. When an operation is performed for the removal of both ovaries menstruation permanently ceases. This does not follow the removal of one ovary.

Anaemia, the condition in which the blood

becomes thin or impoverished, will produce irregular and scanty menstruation and oftentimes cause it to cease temporarily. Great anxiety, serious shock, worry, or severe physical or mental strain may cause menstruation to cease for a time.

The nursing mother, in whom menstruation has not become re-established, thus becomes pregnant at times without being aware of it. She has neither the sign of cessation of the monthly periods nor the change in the breasts to be guided by.

You readily see the importance of consulting your physician at the first probable signs of pregnancy, as the cessation of menstruation due to any of these other conditions demands his advice and attention.

A slight bleeding may sometimes occur at the regular menstruation periods for two or even three months after pregnancy, but this is much less in amount and of short duration. Any considerable loss of blood that appears after pregnancy has been determined indicates a threatened abortion, or miscarriage, which is especially liable to happen at the menstrual period, and should be immediately brought to the physician's attention.

Changes in the Breasts.—Many sensations may occur in the breasts early in pregnancy. These include the sense of fullness; extreme tenderness,

so marked sometimes that no pressure may be borne over them. They also include throbbing and tingling; and by the second month the nipples increase in size and stand out more prominently; the circular area around the nipples grow darker in color. This color is much deeper in brunettes. At the base of the nipples are tiny glands which begin to enlarge and can be seen standing out just underneath the skin. By the fourth month a white watery substance which is known as colostrum, can be seen if the nipples are gently compressed. In the later months this turns to a yellowish color and is less watery. This is not milk and it disappears the third or fourth day after the baby is born.

The woman who has recently nursed a baby may find some milk secreted in the breasts for quite a time after weaning and this is not an indication of another pregnancy.

Morning Sickness.—Soon after the first menstruation is missed morning sickness usually makes its appearance. It is generally most pronounced soon after rising and in most instances passes away after the third month. This sickness may amount in some women only to a slight nausea, and in others be so serious that actual vomiting takes place. It may pass away in one or two hours, or it may persist for half a day and in rare cases last throughout the day.

Severe and persistent nausea and vomiting

must not be ignored, as they often point to an accumulation of poisons in the system which must at once be brought to the physician's attention.

Disturbances of Urination.—Pregnancy usually causes frequent urination often accompanied by some pain and difficulty in passing the urine. This is simply due to the pressure of the enlarging uterus upon the bladder. By the fourth month the uterus has risen so high that the pressure on the bladder is relieved and these disturbances disappear. In the latter weeks of pregnancy, when settling occurs, these symptoms may again return as the uterus again presses against the bladder.

Because of the frequency of urination, the prospective mother must not cease drinking plenty of liquids, as the extra supply of water and other liquids is absolutely essential to her health and that of the baby's throughout the entire period of gestation.

The Positive Signs.—The first positive sign of pregnancy is determined by your physician's examination. It is the enlargement of the uterus. The pregnant uterus enlarges in a characteristic way, quite different from the enlargement due to other causes such as tumors. The first positive sign noticed by the mother is movement, or as it is commonly called, "quickenings." This comes some time between the eighteenth and

twenty-first week. This comes as a fluttering sensation or as gentle taps and grows stronger as the time progresses, usually being most noticeable at night. It is even so pronounced at times as to interfere with sleep and later the taps or "kicks" as they are called can be plainly seen against the abdominal wall. When movement has become established and then a period occurs in which no movement is felt for two or three weeks you must not fail to call this to your physician's attention.

The next positive sign of pregnancy is the fetal heart-beat. This your physician can hear through the walls of your abdomen by the latter part of the fourth month or early in the fifth. The heart-beat is 150 to 160 a minute or about twice that of the mother. This is a most valuable sign because where the baby has been quiet for some time, movement not being noticed by the mother, the physician can reassure the mother that everything is all right by listening to the fetal heart-beat through his stethoscope or by placing his ear against the abdomen.

THE DATE OF CONFINEMENT

If the positive date of conception were known, the time of confinement could be estimated to take place 275 days from that date, or in approximately thirty-nine weeks. However, the date of conception is rarely known, therefore, the method

of calculation is to estimate the time from the last menstruation. Experience has led us to count two hundred and eighty days from the first day of the last menstruation as the average period of pregnancy up to the date of confinement. This corresponds to the nine calendar months, the time commonly referred to which comprises ten lunar or menstrual months of 28 days each.

Rarely does delivery occur before the estimated time. If you count forward two hundred and eighty days from the first day of the last menstruation, you are as near as you can come to the approximate date of your confinement. Another simple method of calculating this date is to count backward three months from the first day of the last menstruation, and then add seven days. This gives exactly the same number of days. This estimate is based on the assumption that pregnancy occurred right after menstruation, which is most usual, but pregnancy may have occurred later in the month so that the estimate would vary several days.

If the date of the last menstruation is not known the only method of calculation is to estimate from the day the first movement or "quickening" is felt. As this usually occurs about the eighteenth week we add to this time twenty-two weeks. This is not nearly so accurate, for quickening may not be felt until later than the eighteenth week. If the date of the first move-

ment is not known the only method left is the very inaccurate one of estimating the number of months of pregnancy by examining the size of the womb.

Second pregnancies are, as a rule, a few days longer than the first. Delicate and sickly women and women who overwork are liable to be confined a few days before the estimated time. Women who are inactive are very prone to go over the estimated date. The sex of the child has no influence upon the date of confinement. Twins are liable to be born before the calculated date.

The mother who has made the estimation of two hundred and eighty days should not worry if she goes one or two weeks over this time, but if she passes the third week her physician will induce labor if he is reasonably sure that she has not miscalculated the time.

PREGNANCY IN THE FALLOPIAN TUBE

In very rare cases the impregnated ovum may be caught in the fallopian tube before being swept into the uterus, and, attaching itself to the wall of the tube, may begin to grow. The opening in the fallopian tube is very small and with the growing ovum serious trouble results. The ovum may be violently detached by the natural contraction of the muscles in the tube and thrown off completely before it has attained much size.

A comparatively small amount of bleeding occurs in this case. Again, the little villi may grow right through the wall of the tube and slow bleeding occur around the tube outside of the womb. The embryo may also grow and fill the tube until it actually bursts through, producing sudden severe hemorrhage with shock and collapse.

A woman who has such a tubal or ectopic pregnancy usually passes her menstruation period, although frequently a slight bleeding occurs at the regular time and lasts for a few hours. Commonly the menstruation period is several days late and then the bleeding is also very slight, but this is usually accompanied by considerable pain in the right or left side, depending upon which tube the pregnancy has taken place in. The small amount of bleeding from the uterus may come at irregular intervals, several days of cessation and then slight bleeding again. The pain in the side increases at these times of bleeding, becoming severe in the nature of a colic. Women often think this is a threatened miscarriage. Whenever these suspicious symptoms occur you should notify your physician without fail and at once.

Following suspicious symptoms of this description if there develops a sudden sharp pain followed by great faintness, dizziness and collapse, not a moment should be lost in getting into imme-

diate communication with a competent surgeon as an instant operation is necessary.

It is a strange fact and one that must be carefully noted that after a pregnancy has once occurred in the tube, normal pregnancy may later occur again, but there is great danger of a second pregnancy occurring in the other tube. For this reason physicians emphasize the importance of avoiding pregnancy for at least two years after the tubal or ectopic pregnancy has taken place.

Women with tubal pregnancies rarely experience morning sickness, there is practically never any change in the breasts, and the womb does not enlarge.

CHAPTER IV

DIET IN PREGNANCY

The Expectant Mother's Weight.—In the early months of pregnancy the mother's weight remains about the same. Sometimes there is a slight loss, sometimes a little gain. But in the last three months there is an average monthly gain of three and a half to five and a half pounds. At birth there is the natural loss to the mother of ten to fifteen pounds, and a little later the tissues which have been stimulated by pregnancy return to their normal condition and there is a further loss of weight. However, after a normal confinement, most mothers remain a little heavier and generally better nourished than they were before pregnancy.

Thus, the mother does not require extra food for the child's growth until the sixth month.

The Use of Her Foods.—The body is constantly calling for the carbohydrates and fats to supply body fuel and yield heat and energy. The carbohydrates are starch and sugar, and we are all familiar with the common foods that we must provide to give the needed supply of fats, sugar and of starch, which is turned into

sugar in the process of digestion. Besides the cane sugar which is our regular table sugar we get sugar in grapes and other fruits, in corn, in onions and in other vegetables. Fat we get in abundance in cream and butter, cocoa and chocolate, and the fatty meats.

Again the body is continually calling for the protein element in our food. We get our animal protein in meat, milk, eggs and cheese. If we eat too little protein food our tissue-building suffers. If we eat too much meat, which is our principal protein food, there is increased putrefaction in the intestines and extra work for the kidneys which are the organs most occupied with ridding our bodies of the waste products of protein. Many people supply the protein needs of the body by a purely vegetarian diet, but the majority have found a mixed diet of both animal and vegetable protein most advantageous.

The other constant call of the body is for water and mineral material. Two or three quarts of water is being used in the daily process of living. This loss must be supplied by the water in our foods and principally by the water we drink. Except for our table salt, the mineral material which, with the water, assists in building new tissue and repairing worn-out tissue, is provided in the other food-stuffs. For example; we get iron (which is so essential to the blood)

from apples, spinach, lettuce, potatoes, peas, carrots and meats. We get lime (the material that makes the bones hard), in bread, milk, eggs and vegetables. Other mineral constituents of the body, such as magnesium, potassium, sulphur and phosphorus, occur in other foods.

The Needed Extra Food.—After the fifth or sixth month there comes a demand for more of the heat and energy-giving and the tissue-building food-stuffs and one of the best means of taking this extra supply is by drinking milk between meals and at bed-time. About a quart of rich creamy milk can be taken in this way by most mothers. If it tends to cause a little indigestion, put a pinch of baking soda in each glassful. Some cannot take this extra milk and they can supply the needed between-meal nourishment by taking a light broth or soup with a graham or oatmeal cracker or a cup of cocoa.

The habit of taking milk is so valuable to the mother before the baby comes and when she is nursing him, that one should try to cultivate it, taking a little at first if it seems distasteful, sipping it slowly, and gradually increasing the portion. Sometimes a little flavoring of vanilla or nut-meg will appease the taste of one who tires of milk. In milk there are found all the elements of a perfect food and it also helps to stimulate the kidneys. Any tendency to con-

stipation created by milk can be overcome by adding laxative foods to the daily diet, or by taking mineral oils at bedtime.

Three regular meals a day, with the hearty one at noon rather than at night, and the regular between-meal milk will avoid discomfort and sometimes banish all tendency to nausea.

Additional Liquids.—Very few people ordinarily drink sufficient water so that this is a matter that needs special watchfulness during pregnancy. For the pregnant woman this supply should be more nearly three quarts, the greater part of it being water, the rest in milk, soup, cocoa or chocolate. There should never be any alcoholic drinks and tea and coffee should be taken in diminishing amounts so that by the fifth month they have disappeared from the diet.

The Laxative Diet.—The additional liquids we have just enumerated combined with a laxative diet will keep kidneys, bowels and skin properly active and will, as a rule, prevent all tendency to constipation. Chronic constipation is extremely harmful to the child. The slowly enlarging organs encroach upon the bowels and constipation in the later months becomes more difficult to avert. There must be a free, thorough movement of the bowels each day, and if the laxative diet does not accomplish this it must be brought about by an artificial laxative such

as a cascara pill at bedtime, or one of the mineral oils.

The laxative diet for pregnancy consists of more liquids, more fresh vegetables and more fresh fruits and cooked fruits and less meat than the amounts taken under ordinary circumstances. Eat meat only once a day, eat it sparingly and do not eat it fried. Choose boiled and roasted beef and mutton in preference to pork and veal. Game, poultry, fish, oysters and clams can all be taken by the pregnant woman in good health. Pork, goose and duck, being high in fat, are not so well digested. Of course, as every woman knows, the animal foods to be selected before all others are milk and eggs, also the products of milk such as cheese, butter and buttermilk.

Of fruits and vegetables that are natural laxatives there is an endless variety from which to choose to appease the appetite and nourish the body. There are apples, peaches, plums, grapes, pineapples, cherries, figs, prunes, oranges, pears, apricots, grapefruit, raspberries and strawberries. In addition to these uncooked fruits that belong to the laxative diet, there are the cooked and preserved fruits, such as pears, apricots, peaches, apples, figs and prunes. The fresh green vegetables and the winter vegetables have laxative properties. The fresh vegetables can be eaten as salads with French

dressing of good olive oil or mayonnaise, such vegetables include lettuce, water cress, endive, celery, spinach, young greens, string and lima beans, carrots, asparagus, onions, peas and potatoes. Of these spinach is of great value as a laxative. Vegetables that should be eaten with more care as they are not so digestible are raw onions, cabbage, cauliflower, turnips, radishes and especially navy beans, which, even thoroughly baked, do not make a form of food that is desirable at this time.

Prominent in the laxative diet of pregnancy are the grains. Bread of whole-wheat flour and of graham flour is valuable and in the cooler weather corn meal also. Oatmeal, at all times one of the best growing foods, is a standby when thoroughly cooked. Grits are also good. These are all nourishing grains. Bran, while without food value, is a good "sweep" for the stomach and intestines.

The Cravings of Pregnancy.—It is my experience that there is considerable more fiction than truth in anything that I have heard about the so-called cravings of pregnant women. If the woman who is to be a mother desires one article of diet more than another, and it is not going to harm her, I would recommend that she have it. I know of no case where the child has been "marked" by a denial of food that was longed for, except by the mark of malnutri-

tion in the case of the mother who is not properly nourished and provided for.

The Ideal Diet for the Last Months.— During the last four or five months the ideal diet is the one that puts the least strain of work on the kidneys and the safest for the mother from every standpoint of health. The diet should include fresh eggs, buttermilk and sweet milk, cheese, fruits of all kinds and vegetables of all kinds except navy beans. If the kidneys are not performing their work properly, you will find the advice of all physicians is to entirely eliminate meat from the diet, as it readily putrifies in the intestines, causing auto-intoxication. You will find all authorities agreed that eggs, cheese and especially milk, furnish all the animal protein the mother needs under such conditions and are the ideal animal proteins for the last months of pregnancy. For this reason we ask, why add meat to the diet if it is not actually needed, and puts extra strain upon the kidneys and increases the tendency of the pregnant woman to constipation? This diet that I have just set down as ideal has proven in my experience by far the safest for the expectant mother and is one that supplies all the nourishing elements that are needed.

The Diet's Relation to the Child's size.— When the needed food elements are lacking in sufficient quantity to provide for both mother and child, it seems that in some way the system

manages to take from the mother what is needed for the child. For instance, where attempts have been made to make the baby's bones soft by limiting the mother to food deficient in lime and other minerals, we have found that the mother's tissues were called upon and drained to supply the needed lime for the fetus. Her own bones supplied the lime. But when the food supply was more than sufficient for both, the excess was distributed and stored up in fat in the bodies of both mother and baby. We know that women who do not exercise and who satisfy abnormal appetites give birth to fat babies. Again we find among our very poor; premature, small, puny infants born of mothers improperly nourished and overworked. Candy, cake and other sweets eaten by the mother tend to store up fat, but beyond regulating the amount of such excess sugar taken into the system, the diet should not be tampered with in any attempt to reduce the size of the child.

CHAPTER V

NAUSEA AND VOMITING

Nausea, one of the first symptoms of pregnancy, occurs in two-thirds of all pregnant women. It is first noticed just after the first menstrual period is missed and continues until the third month or a little later, ceasing about the time life is felt.

When the embryo starts to grow it throws off a secretion in the nature of a ferment which circulates in the mother's blood and affects many of her organs. One of its most common effects is a marked irritation of her nervous system, and especially of that part of the brain which controls the act of vomiting. On the other hand, the mother's blood begins to manufacture a substance to counteract this secretion or ferment. In some mothers this process is rapid and quickly overcomes the tendency to nausea, in others the process is slow and the vomiting and morning sickness are more severe as the effects of the ferment are only slightly counteracted.

Thus, all the excretory organs in the mother, the skin, lungs, kidneys and bowels, have a great

amount of work to do. And if, for some reason, her blood fails to manufacture the anti-ferment to counteract these irritating, poisonous products, serious disturbances are bound to arise, and these troubles we call the toxemias of pregnancy.

When nausea comes before rising, relief will be found by taking some such food as a piece of toast or two or three oatmeal or salted crackers an hour or a half-hour before getting out of bed. If dry toast or crackers fail, a glass of milk, soft-boiled egg or milk-toast taken with a cup of coffee while still in bed, then lying still for an hour, will prove successful in averting the nausea. Some women become nauseated after eating breakfast, vomit all they eat but are hungry directly and able to retain a second meal. If the sickness is severe it is best to lie down and remain quiet for one or two hours after eating. This is a good plan to follow when nausea comes on during the day. Rapid eating and over-eating aggravate this condition and sometimes it will be better to substitute four or five lighter meals for the three customary heavier ones.

When nausea and vomiting becomes so severe that the mother is compelled to remain in bed for several days and is not even able to retain small amounts of food and liquids, the necessary amount of nourishment must be given by the rec-

tum. This method of feeding is to be carried out according to the directions of a physician.

Whether it will be the dry foods taken with small amounts of water at mealtimes and with the needed additional water between meals, or the liquid and semi-liquid foods at mealtimes that will best overcome nausea, can only be determined by experimenting.

The condition of the bowels has a direct influence on the condition of nausea. They must be kept open, for if constipation is allowed to exist for even a few hours, dizziness, nausea and headache are prone to result.

The state of mind has a tremendous influence upon the prevention of nausea. If the mind can be diverted from an apprehension or expectation of nausea, many cases can be greatly relieved and controlled. Worry of any kind; fear, anger, or shock, not only aggravate this condition but actually will bring it on.

There are numberless preparations which have been commonly recommended for the relief of nausea and vomiting, but experience has shown that what might possibly relieve one mother would be entirely ineffectual with another. Any such medicine had best be prescribed by your physician to meet the individual needs of your case.

Persistent Vomiting Due to the Poisoning of the System.—There is always a definite cause

within the body itself if vomiting and nausea persist. The morning sickness of the first three months of pregnancy is not necessarily a sign of any serious trouble, but if it continues after the third month and is severe, it is an unmistakable signal of the piling up of poisons in the system. This points strongly to a failure of the kidneys to do their proper work and to the existence of a condition known medically as the toxemia of pregnancy.

While it is true that many of these poisons or toxemias which accumulate in the mother's blood are the waste products thrown off by the growing fetus, we must not lose sight of the fact that many of them come from the mother's own intestines where constipation and auto-intoxication, or the decomposition of food, are allowed to exist. Auto-intoxication commonly follows the diet of improper food, especially when too largely made up of animal protein in the form of meat.

To prevent the accumulation of poisons in her system the mother must give constant attention to her personal hygiene. She must keep every channel through which poisons are gotten rid of actively at work. It is almost beyond belief to find what can be accomplished by strict observance of these details.

Clothing of sufficient warmth must be worn to prevent the skin from chilling because in the

chilled skin the mouths of the sweat glands are contracted and fail to throw off their poisons properly. It is the daily warm bath with brisk rubbing that keeps the skin glands active and removes the poisons thrown out, which if allowed to remain will clog the pores. It is the proper amount of daily exercise that keeps all the organs of the body in healthy tone and performing their duties. It is the constant habit of breathing plenty of fresh air, waking and sleeping, that keeps the blood supplied with the oxygen that is vitally essential for both mother and fetus, not only in the building of tissues but in expelling through the lungs much of the waste matter. It is the taking of quantities of fluids, water particularly, that dilutes the poisons and aids in washing them away through the kidneys and skin.

When poisons do accumulate in the system the mother is usually forewarned of their existence by certain definite symptoms. These symptoms are: first, the persistent vomiting; second, intractable headaches; third, dizzy spells with faintness; fourth, swelling of the feet, and the swelling of the hands, arms and face which is more significant than the swelling of the feet and limbs; fifth, blurring of the vision and dark spots seeming to float before the eyes; sixth, shooting or darting pains in various parts of the body with jerking and twitching of the

muscles. Any one of these symptoms alone may not mean a serious accumulation of poison, but two or three or all of them appearing together call for your physician's immediate care. Persistent vomiting or the poisons of pregnancy may bring on a miscarriage. Therefore, early attention to their relief is imperative.

It is to avert this readily developed condition of toxemia or poisoning of the system that repeated and careful examinations of the urine should be made by your physician throughout pregnancy, particularly every two weeks after the fourth month.

Albumin may appear in the urine any time during pregnancy. This is a sign that the poisons circulating in the blood have injured and impeded the work of the kidneys. Albumin is one of the nourishing elements taken up from the food by the blood and retained until used wherever it is needed in the structures of the body. When the filtering process of the kidneys becomes injured by the poisons, this albumin is allowed to drain out into the urine instead of being stored in the body for use. While this means a loss of nourishment, we are mostly concerned with its appearance in the urine as a danger signal of accumulated poisons, and its prompt heeding by your physician will enable him to help avert serious trouble that might quickly ensue.

A woman may have none of these symptoms yet still have albumin in her urine. This is only to be discovered by an examination of the urine. On the other hand, she may have two or more of these symptoms and her urine not show albumin. But while the kidneys may stand up under the strain of the poisons that accumulate in the blood and still take proper care of the albumin, they may show another sign of accumulated poisons which are responsible for these symptoms. Let me illustrate: In the urine that is excreted daily, there are certain proportions of water and a certain part of solid matter in solution, or dissolved in the water. This solid matter bears a definite relation to the weight of the body and to the food eaten. A woman weighing one hundred pounds, on a certain diet, excretes in her urine daily just so much of this solid matter when her organs are functioning properly. One weighing more and eating more, passes off more solid matter. The amount of this solid matter is thus an indication of the condition of the kidneys and other organs. When the solid matter is below the correct proportion, something is wrong—the accumulated poisons are stopping the machinery. Examination of the urine to determine the amount of solid matter must be made in a laboratory.

Eclampsia.—Now we come to a matter which

I urge you to heed well. If these poisons are allowed to accumulate in the pregnant woman's system; if she has not heeded the danger signals or has not had examinations of her urine and pursued the necessary treatment for her case; just before confinement or during labor, there is apt to develop a serious condition known as eclampsia and which is accompanied by convulsions and loss of consciousness or a state of coma oftentimes proving fatal.

Treatment for the Poisons of Pregnancy.—

In the preceeding paragraphs we have become familiar with the state of the system when affected by the poisons or toxemias of pregnancy. A demonstration of the treatment for this condition can be made by holding up before your eyes a test-tube or little glass vial containing a substance of the same chemical composition as the tissues and blood of your body as they exist when in a healthy, normal condition. I will pour into this tube, water, representing the water you drink. You will see that the substance in the tube remains unchanged except that a very small amount of the water is absorbed. This normal state is called alkaline and it is in this condition that the body must remain to be healthy. Now I will pour into this same tube a little acid. The substance in the tube immediately begins to absorb quantities of the water and as the water is absorbed, the

tissue swells. This is what we call an acid state, and results from putting some acid substance into the healthy tissue and blood of your body.

What we have just seen taking place in our imaginary test tube, is exactly what happens in the human body. When poisons accumulate they act upon the tissue and blood and other body fluids just as the acid poured into the tube acted. The tissue begins to swell and absorb great quantities of the water you drink and retains it preventing it from properly carrying off the poisons through the kidneys and skin. This is known as a condition of acidity, or an acid state of the body and it accounts for the swellings of the face and arms and hands. This is what takes place in Bright's disease when the whole body begins to swell and take up quantities of water, far more than the normal amount that should be retained in the tissues.

The thing to do is now very clear. We must introduce more alkalies to help counteract the poisons. There are two things to be done. First, regulate the diet. Second introduce into the system as rapidly as possible the most helpful alkalies.

The diet is easily regulated. As meat is the animal protein that most greatly aggravates this condition of acidity, we must promptly strike out all meats and meat soups or broths

from the diet. We must confine ourselves exclusively to milk, especially buttermilk, and vegetables and fruits. Because the acid of fruits is a different kind of acid from the acid state of the system in this condition of poisoning, and acts as a neutralizer, we can safely include all fruits that the mother is in the habit of taking well. She must drink plenty of water, three quarts a day is not too much to help carry off the poisons and a very free action of the bowels must be promptly established, preferably by the use of Epsom salts or magnesium citrate. This must be repeated in quantities to cause two or three watery movements daily.

There are two ways to introduce alkalies. Taking sodium bicarbonate by the mouth is an old way, but its drawback is that when continued for any length of time it greatly upsets the stomach in many women. The best method in use today is the one established by the great surgeon, Dr. J. B. Murphy, and is called "The Murphy Drip." This consists of a simple solution of three teaspoonfuls of sodium bi-carbonate and one-half teaspoonful of sodium bromide dissolved in a normal salt solution. A normal salt solution is made by dissolving three level teaspoonfuls of table salt in one quart of water. Put this solution, as hot as it can be well borne, into the bowels drop by drop, so that practically all of it will be absorbed into the blood

and little or none of it run out. This can be done by using a fountain syringe and arranging the clamp so that the water comes out drop by drop. The patient must lie prone on the bed and let this treatment take three hours. Then rest for three hours, and take the drip treatment for a second three hours. If the nausea, vomiting and headache have been severe, nothing should be given by the mouth for twenty-four or forty-eight hours except water. If desired, a little bi-carbonate of soda can be dissolved in the drinking water. This is some aid in increasing the alkalinity of the blood. The sodium bromide in the solution not only adds alkaline to reduce the acidity but it has a soothing effect and helps reduce the nausea.

The advantage of this treatment is that it can be carried out in the home and requires no hospital equipment. It is one which every woman can take herself and it will rarely fail to give prompt relief. This same solution can be introduced into the system by means of the enema, the patient lying down and retaining the fluid as long as possible. In this way much is absorbed and the enema can be taken twice a day until relief is obtained. For an enema use the long rectal point of the regular fountain syringe. Use sterile vaseline so that it will not irritate the rectum. In using the "Murphy Drip," procure from your druggist the No. 18 or 20 male

catheter, which can be passed up into the rectum for about eight or ten inches allowing nearly all of the fluid to be retained, or, if you cannot secure the latter, procure the small size soft-rubber rectal tube which can be connected to the syringe and also can be passed into the rectum as far as the rubber catheter. This treatment must be continued until all symptoms of the poisoning have disappeared.

CHAPTER VI

SPECIAL CARE OF THE BOWELS, KIDNEYS, SKIN AND LUNGS

All waste matter of the mother and the fetus must be gotten rid of through the bowels, kidneys, skin and lungs, and unless these portals of exit are kept constantly active, trouble will surely result. Too much attention cannot be given to every detail which contributes to the healthy activity of these four organs if pregnancy and confinement are to be made safe and comfortable.

THE BOWELS

The bowels carry off tremendous amounts of poison. Any failure of their proper activity for a single day has a dire influence upon the entire system. Headache, lassitude and depression which, following even a mild case of constipation, are only signals that poisons which should have been gotten rid of through the bowels have piled up in the system. In pregnancy constipation is very common.

The first and ideal way to correct constipation is through the diet. One thorough movement

must be had each day and unless this has taken place, a soap-suds enema must be used without fail before retiring because the accumulated poisons remaining in the bowel overnight will of necessity be absorbed into the general system in great amount, and it is this accumulation of poisons that threatens the mother's safety. It is important that through diet or through the means described in the following paragraph, the bowels be kept so regulated that an enema need seldom be resorted to because its constant employment is a habit as much to be avoided as the repeated use of cathartics. Furthermore, the enema moves only the mass in the lower bowel and does not wash away the poisons from the upper bowel.

Coincident with attention to the diet, the mother should make every effort to establish a regular time each day for the evacuation of the bowels. One of the aids in this matter is the drinking of one or two glasses of water regularly upon rising in the morning, providing it does not increase the nausea that is found occurring during the first three months of pregnancy.

Graham bread, whole wheat bread, bran bread, or bran cooked with cereal, all kinds of fruits and vegetables except white navy beans, and especially the fresh fruits and vegetables, are of inestimable value. I have found with many

patients that a light fruit meal at bedtime is very helpful. This consists of dates, figs, apricots, prunes, pears or peaches, a little apple sauce or baked apple taken with a glass of warm milk, or if milk is not well taken this light fruit meal can be eaten to equal advantage with a glass of water.

In spite of attention to diet, constipation may sometimes persist and then the safest and simplest remedy is one of the mineral oils, such as liquid albolene, Nu-jol or Interol, two or three tablespoonfuls at bedtime. Olive oil can be used successfully although much of the olive oil is absorbed in the intestine and its steady use is fattening. However, the poorly nourished mother suffering from constipation finds it a most desirable measure.

The most effective and agreeable remedy for constipation at any time for adults and children, I call the "Most Pleasant Formula." It consists of one pound each of dates, figs and raisins with one-half ounce of senna leaves, run through a meat grinder three or four times and kept in a covered glass jar. Take one or two teaspoonfuls at bedtime. This is effective, good to take, and a harmless laxative food. When traveling, or in some way prevented from employing the best and safest measures to offset constipation, a three or five-grain cascara pill can be taken at bedtime.

THE KIDNEYS

The proper functioning of the kidneys throughout pregnancy is of the utmost importance. One of the first duties of your physician is the making of regular and systematic examination of the urine during the whole term of gestation.

During the first weeks of development the extra work put upon the kidneys is little and the urine need be examined only every three weeks. But from the beginning of the fourth month until confinement, the examination of the urine should be thorough every two weeks and should complications develop, specimens should be collected and sent to a laboratory for complete examination. When the kidneys show signs of failing to do their proper work, your physician should make more frequent examinations than every two weeks. Urine for examination should be collected for a period of twenty-four hours. Specimens of single excretions are not of value in making tests. Scald a glass covered jar in boiling water. Throw away the first urine passed in the morning begin collecting the rest of the urine passed during the day and night, also the first urine passed the following morning. Keep it well covered. This gives a full twenty-four-hour excretion of the kidneys. Have a bottle of chloroform ready and put one teaspoonful into the urine at any time while

you are collecting it. This prevents decomposition. The amount for the twenty-four hours should be carefully measured and well shaken together. From this entire amount, four to six ounces should be poured into a perfectly clean bottle, tightly corked or sealed promptly, and labeled with the exact amount passed during the twenty-four hours and from which the small specimen is taken.

The reasons for collecting a twenty-four-hour specimen of urine for examination are: first, the entire amount shows whether you are passing a sufficient amount of urine. If the amount is less than one quart it shows that you should be drinking more water. Second; there might be trouble indicated in a twenty-four-hour excretion of the kidneys that would not show in a single specimen. Third; it is not albumin alone that the urine is examined for but to ascertain the amount of solid matter in solution in the urine that is passed in the twenty-four hours, as in the event that there are symptoms of poisoning and a laboratory test is to be made instead of the usual physician's examination, this definitely shows whether or not the kidneys and other organs are being blocked in their duties by poisons accumulating in the system. Fourth; the twenty-four-hour specimen is needed because at times the mother may have painful and frequent urination accompanied by fever

and oftentimes a chilly sensation for which the physician is sometimes at a loss to account. A complete specimen of the urine may disclose the presence of pus, indicating an infection of the bladder known as cystitis; or else an infection of the kidneys even higher up, in the pelvis.

Do not become alarmed at sediment in the bottom of the jar of collected urine, thinking this an indication of trouble with the kidneys. Sediment appears in perfectly normal urine when it cools or has stood long enough to decompose. Remember also, that pain in the back is not as commonly supposed, a sign of trouble with the kidneys, but in pregnant women is not infrequently due to a strain placed upon the muscles of the back by the tipping forward of the enlarging uterus.

SKIN AND BATHING

Careful care of the skin by proper bathing and the wearing of sufficiently warm clothing is needful. In pregnancy extra poisons are thrown off through the pores of the skin and if these pores are not kept free by the daily sponge or tub bath they become clogged and the poisons are kept in the system. Never take very hot baths or hot steam baths except on your physician's advice. The cold sponge or tub bath should not be taken unless your system is well accustomed to it and then only in the

first three months of pregnancy. The warm bath at bedtime often greatly facilitates sleep.

Skin Changes.—As pregnancy progresses the area around the nipples becomes very much darker and a dark band of skin runs perpendicularly down the center of the abdomen. Such dark areas may appear elsewhere beneath the skin. As the uterus enlarges the skin is greatly stretched over the lower part of the abdomen and the under layers break in places, producing red streaks which extend upward laterally, not uncommonly appearing over the forward part of the thighs. Later these red streaks become white. Massaging with olive oil, vaseline or cold cream, while not preventing the streaks from forming, may relieve the sensation of stretching of the skin.

Clothing.—The clothing must be sufficiently warm so that the skin is kept from chilling and so that the sweat glands may remain active in their process of excretion. The clothing next the skin, except in warm weather, should be of light wool for wool takes up the perspiration as cotton does not, and keeps a warm and dry layer next to the skin. There are excellent combinations of cotton-and-wool and silk-and-wool which are non-irritating for those who cannot bear all-wool next the flesh. If possible all of the garments should be suspended from the shoulders to avoid the strain of bands about the waist.

Tight clothing should not be worn about the chest as this prevents deep breathing.

Skirt bands should never be so tight as to constrict the abdomen. Wear common sense shoes with broad low heels which bring the weight directly over the arch. High heels tip the pelvis forward, putting an unnecessary strain on the muscles of the abdomen and resulting in severe backache.

Up to the third month the regular corset may be worn if not laced tightly. After that time wear a correctly fitted maternity corset, one that gives the muscles of the abdomen proper support. After the third month, as the uterus enlarges, it tends to fall forward and if unsupported puts too great a stretch or strain upon the muscles. If the scientifically designed maternity corset is worn, these muscles keep their tone and this retained tone is of great assistance in supporting the uterus at the time of labor.

The properly fitting maternity corset should come well down around the hips and lace below the abdomen so that the uterus receives support from below. From there the corset should arch forward, allowing room for the expansion of the uterus. It should come high enough to support the breasts, but should never be laced tightly against them to compress either the breasts or the lower part of the chest. Lace the corset from below upward. It should be unlaced every day

and put on in the morning when the mother rises from her bed and before getting on her feet. She should lace the corset snugly just below the abdomen in order to give all the organs support from below, and draw the laces loosely over the abdomen and chest.

Care should be taken never to lace the corset tightly directly over the abdomen as harm can be done to both mother and child by this pressure. The skirt band can be supported from the corset and this also prevents a constriction of the uterus.

The Night Belt.— A belt such as the Storm belt, which can be purchased in the shops should be worn at night to give support to the heavy and enlarged uterus. This can readily be made at home of some good, strong washable material. The belt comes well below the abdomen to give it support and should be made to lace at the back or sides to be readily adjusted for comfort. The night belt can be worn on hot days when the corset becomes irksome and will give fairly good support when active exercise is not being taken.

CHAPTER VII

THE CARE OF THE BODY

The first question the prospective mother asks when her pregnancy has been determined, is: "What must I do, and what must I not do, to give my baby the best possible start in life?"

My first warning concerns the advice that will be offered from all sides. Many fads and hobbies have been developed and their followers will urge you to adopt them. You may have to listen quietly to a great deal of advice from kindly intentioned people, but you need not take it all to heart or try to follow it.

Pregnancy is a natural, normal condition and its only requirement is that you live a natural, simple life, doing all things with moderation. Exercise regularly each day in the fresh air and sunshine. Through the fresh air that you breathe your baby gets oxygen. By deep breathing and a constant supply of fresh air your body and your baby's are provided with oxygen which is absolutely essential to convert your food into energy for yourself and the child.

Be outdoors two hours each day. Open your windows at the top and bottom to provide cir-

ulation in your living and sleeping rooms. Even in winter the room where you work and sleep must receive a constant supply of pure fresh air if you are to be well. With a little attention, your windows can be arranged with a board or glass slanting up from the sill at the bottom so that this can be accomplished without draughts. Cover yourself warmly enough at night, put on a sleeping cap, but keep your window open wide enough to flood the room with fresh air all night.

Whether you work or walk for exercise, stop before you are fatigued. Sit down or lie down and rest about a half hour before you feel tired. Your outdoor walk should be only long enough to make you feel refreshed. Increase it a little each day until you can walk for an hour twice a day and not feel tired, but benefited in every way. Carry your chest up as you breathe, and by holding it high, your shoulders will fall into correct position and your abdomen will be held in. Continue these daily walks in the open air up to the very time of your confinement.

Avoid constantly sitting, with no exercise. This is as disastrous as too violent exercise, such as tennis or golf or fatiguing work in laundry or kitchen. These are liable to bring on miscarriage in the early months and should never be tolerated in the later months. Avoid long rides over rough roads.

If confined to the bed because of illness,

swollen limbs or varicose veins, the body should be exercised by a gentle massage each day, with gentle rubbing over the abdomen and a more vigorous manipulation of the muscles of the rest of the body to keep up their tone and to stimulate circulation.

If confined to the house, take deep breathing exercises morning and night before an open window, but never attempt any form of physical culture or calisthenics without your physician's advice.

Hard work during the later months tells upon the baby; and it will not be so vigorous, robust or well nourished. Guard against exhaustion during the later months. You tire more easily and should rest more often. Most civilized nations have a law forbidding the employment in shops or factories of a pregnant woman one month before and four to six weeks after confinement. This should apply with equal force to exhausting work at home. Turkey, Russia, Italy and the United States have no such law.

The ordinary *light* housework is an ideal form of indoor exercise. It exercises the muscles and diverts the mind into many pleasant channels. But all hard work, such as family washings, scrubbing floors, sweeping, lifting or moving heavy objects, or standing long hours on the feet, must be condemned. Observe the women who do this over-hard work through several pregnancies.

There is but one result, broken health and thousands upon thousands of cases of chronic invalidism.

The prospective mother should lie down and relax completely for one or two hours in the middle of the day if she wishes to maintain her health during and after pregnancy. She should have eight or nine hours of unbroken sleep at night. Early in pregnancy learn to sleep on the side, which in the later months will insure better rest and relief from pressure. A hot water bottle at the feet, a warm bath at bedtime, with a glass of warm milk or a bowl of gruel, greatly reduces sleeplessness. Sleep on a firm smooth mattress, and preferably alone, because turning or restlessness in the night greatly increases your discomfort. Eat your hearty meal at mid-day and then a light supper. Do not take drugs to produce sleep unless they are taken according to your physician's advice.

Remove all worry and apprehension from your mind by placing yourself in your physician's care. Do not shun acquaintances; mental diversion is necessary. Good music, the theatre, concerts, and the daily reading of helpful books are all aids.

Long hard trips by train or auto should be avoided during the early weeks because the ovum is insecurely attached and exhaustion can easily bring on miscarriage; and during the last two

or three months because the uterus is irritable and contractions can easily occur.

INDIGESTION

Heartburn and flatulence cause considerable distress at this time. Usually occurring in the early months, they may persist throughout the entire period. A burning sensation in the stomach, usually an hour or two after eating, is due to an over-secretion of hydrochloric acid. This acid is secreted in the stomach to aid digestion and during pregnancy there is sometimes an over-supply. Fat such as butter, cream or olive oil taken thirty or forty minutes before eating will greatly lessen this secretion. Take two or three tablespoonfuls of olive oil or a half glass of rich cream. This will oftentimes relieve the heartburn entirely. Do not take these extra fats with the meal as this only lengthens the time of digestion and allows more acid to be secreted. Take them thirty or forty minutes before eating. If heartburn persists an hour or hour and a half after meals, when the discomfort is severe take Husband's magnesia or milk of magnesia, or you can obtain from your druggist little squares of magnesia which can be chewed. Bicarbonate of soda which is sometimes used, is disturbing to the stomach and causes indigestion in many.

The first thing to do when you are troubled with flatulence or gas is to correct the consti-

pation, which is usually the cause, by the methods already given. A great deal of fermentation goes on in the stomach and bowels. By following the diet suggestions laid down you can be relieved of much of the discomfort from fermentation. If it is severe, eat lightly of all starchy foods such as beans, potatoes or corn, all fried foods, and sweets. When gas distention starts, drink buttermilk, preferably that made by yourself from the Bulgarian tablets which you obtain from your druggist. You can eat the undissolved tablets also and will get a great deal of relief.

CARE OF THE TEETH

One of the first things the pregnant woman should do is to have all cavities of her teeth filled. Have X-ray photographs of all your teeth if you live where this can be done. If not, it will pay to make a trip to a nearby city where there is an X-ray laboratory. Abscesses at the roots of your teeth cannot be detected otherwise and these can do an unlimited amount of harm by draining poisons into your system. These are especially dangerous during pregnancy as they throw extra work on the kidneys which are already burdened with the additional duty of throwing off the poisons from the child's waste as well as from your own. The acid which is belched up in the mouth from an over-acid stom-

ach corrodes the teeth and decays them, many mothers finding this decay rapid during pregnancy. The teeth should be brushed and cleaned with dental floss with unusual care at this time, allowing no particles of food to collect between them. If you will use milk of magnesia or lime water to rinse your mouth, also using it on the tooth-brush to scrub around the gums, you will do much to preserve your teeth during pregnancy. This alkali keeps the acid neutralized. Take a mouthful of milk of magnesia and rinse your mouth thoroughly with it several times during the day. If cavities occur during the first three months they can be filled permanently, but later should have temporary fillings. Teeth should not be pulled after the third month unless in an emergency.

PRESSURE

Pressure of the enlarged uterus on the other organs causes a great deal of discomfort, oftentimes producing shortness of breath, which is usually worse at night when lying down. Lying on the side or being slightly propped up by pillows or by the use of a back-rest in the bed may give relief. The kidneys must be carefully watched and the urine examined frequently when this shortness of breath is present.

As the uterus enlarges, it presses against the veins which run upward from the lower limbs

and causes swelling of the feet and legs. This swelling of the feet is also a symptom of failure of the kidneys and always calls for examination of the urine. The swelling is sometimes so severe that the mother must remain off her feet most of the time, keeping off them almost entirely during the last two months. The best relief is obtained by lying down with the limbs slightly elevated. As soon as the uterus is emptied, the pressure is taken away and the swelling disappears.

As a result of this pressure on the veins, not so much during the first pregnancy but very often in subsequent ones, the walls of the veins of the lower extremities stretch and produce varicose veins, so distended and painful at times as to cause fear of their bursting. This accident is very rare, however. The best relief is the silk elastic stocking which can be purchased through your druggist. If you cannot obtain these take flannel strips about three inches wide cut on the bias and sew end to end. These make splendid bandages. Wind them on snugly, beginning at the toes, omitting the heel, passing up the leg and even over the thigh if necessary. They can be kept clean by washing. Put them on in the morning before rising as the veins are less swollen after a night's rest.

The enlarging uterus also presses upon the veins which pass upward from the rectum and

hemorrhoids are a very common and annoying trouble during pregnancy. Many things can be done to relieve painful hemorrhoids. After a movement of the bowels, apply very cold or even ice water with a soft cloth. Use a glassful containing one or two teaspoonfuls of witch hazel and apply to the affected parts for fifteen or twenty minutes. A sitz bath of cold water containing two or three tablespoonfuls of witch hazel gives relief. Sit in this twenty or thirty minutes. Adrenalin ointment applied after this cold application, or the use of Adrenalin suppositories, gives great relief. No attempt should ever be made to operate upon hemorrhoids during pregnancy.

CARE OF THE BREASTS

The breasts need not be given any special attention in the early months of pregnancy. But beginning with the sixth month the nipples should be washed each day with soap and water, using a soft cotton or gauze wash-cloth. By the seventh month, each day after bathing the breasts, apply on a piece of sterile cotton or gauze a solution made up of one teaspoonful of boric acid crystals dissolved in three ounces of alcohol. This hardens the nipples and prevents the development of cracks and fissures during nursing. It is through sore nipples that infections gain entrance to the breast, resulting in abscess and

entrance to the breast, and it is these infections that result in abscess and defeat attempts at nursing.

Flat and retracted nipples should be gently massaged and very gently pulled out with the thumb and fore-finger in order to elongate them so the baby will be able to nurse.

THE DOUCHE

Mothers often ask if the use of the douche during pregnancy is harmful. At this time there is commonly more or less discharge from the vagina. The glands at the mouth of the womb, because of the great increase in the blood supply of the uterus, become more active and throw off an increased amount of secretion. As long as this discharge is not troublesome or irritating to the skin around the vagina, the use of the douche is unnecessary and not advisable.

Some mothers insist upon the use of the douche believing it necessary for cleanliness, but it should never be used in the last three months of pregnancy. In using the douche for cleanliness, the water should be boiled but never used hot. The douche point, which should preferably be of glass, should be boiled so that it is perfectly sterile. In each quart of warm water the use of one level teaspoonful of aluminum acetate or two level teaspoonfuls of table salt is cleansing and mildly astringent, especially the alum.

A very good external substitute for the douche is the sitz bath, especially where the discharge from the vagina is irritating. This can be taken in a small tub or wash bowl placed on a low stool. The water should be about the body temperature and you should sit in it for twenty or thirty minutes, letting it well cover the affected parts. After this bath you can dust the irritated skin with powdered zinc oxide or apply zinc oxide ointment containing ten per cent of white wax. If hemorrhoids are also troublesome the sitz bath can be taken in considerably cooler water as cold water relieves the hemorrhoids.

CHAPTER VIII

THE INTERRUPTIONS OF PREGNANCY—MISCARRIAGE AND PREMATURE BIRTHS

By interruption of pregnancy, I mean the expulsion of the fetus from the womb for any cause before it has reached full development. One of the first causes is inflammation of the lining of the womb, called endometritis. Any chronic inflammation of the womb can terminate pregnancy at any time. If a mother has suffered an interruption of pregnancy she should consult her physician to determine whether or not in his opinion she has symptoms of chronic inflammation and receive the treatment to correct it.

Another common cause of miscarriage is displacement, the womb being out of its normal position. This only serves to emphasize how important it is before the physician discharges his patient after labor to determine by local examination that the womb is in correct position. Appropriate treatment applied at this time will often permanently correct a misplacement.

Accumulation of poisons in the system during pregnancy, allowing a condition of toxemia to

exist, and an impoverished condition of the blood, known as anaemia, are causes of miscarriage.

A very prevalent cause of miscarriage is either inherited or acquired chronic blood disease known as syphilis. This disease may exist in the blood unknown to the mother. A mother who has been the victim of repeated miscarriages, where no other cause is plausible, should not fail to have the proper blood test, known as the Wasserman.

There is another condition not commonly understood, which is referred to as habitual miscarriage, in which the muscles of the uterus seem to be in an irritable state. In this condition some slight cause such as running a sewing machine, over-reaching, running rapidly up and down stairs, or any violent exercise, may bring on miscarriage. Where this tendency exists the mother must pay the strictest attention to all the rules of hygiene laid down in the chapter entitled, *The Care of the Body*. Experience shows that in this class of women miscarriage is more apt to occur at the usual menstrual time, and by remaining in bed through what would be the regular menstrual periods each month, many women can often go successfully through the term of pregnancy. Women prone to miscarry should keep quiet at all times and avoid all physical strain.

For reasons not clearly understood miscar-

riage is liable to occur in women who become very fleshy. High altitudes and change to hot climates in those not accustomed to them, may be causes of miscarriage. Tuberculosis in the mother, or any of the acute infectious diseases, accompanied by a high fever, are very likely to result in miscarriage. The condition of the nervous system is also of prime importance. It is undoubtedly true that severe nervous or mental shocks are capable of interrupting pregnancy at any time during its course.

Miscarriage occurs most frequently between the second and third month. After the fourth month it is uncommon. Interruptions of pregnancy are more frequent after the first birth and are more liable to occur with each successive pregnancy. The woman who is pregnant repeatedly with short intervening periods is subject to frequent miscarriages.

The following symptoms of miscarriage and the knowledge of what to do should it occur are of importance. During the early weeks termination of pregnancy may occur with very little pain, but in almost all instances there is severe hemorrhage. Should the miscarriage happen during the second, third or fourth month, the pain and especially the hemorrhage are decidedly more severe, the hemorrhage often being so great as to endanger life.

Perhaps the symptoms that will first attract

the attention will be a slight chilly sensation and pain in the back. The backache may be slight or severe accompanied by a marked bearing-down sensation and a feeling of heaviness in the lower part of the abdomen. A feeling of faintness and exhaustion is present, especially if there is any considerable loss of blood. After the fifth month an interruption of pregnancy is attended with great danger. At times an operation becomes necessary. The loss of blood and the accompanying pains are similar to those which accompany a normal delivery.

Whenever you have a slight bloody discharge immediately go to bed in a darkened room where you can have rest and quiet. The position should be on the back, with as little change as possible. If the bleeding is only slight and ceases promptly with this treatment you may be out of bed in about three days. Many times after such symptoms have appeared and a rest in bed for several days has been taken, pregnancy has gone on to its full term without further interruption. If there is any return of the hemorrhage following the period of rest go back to bed and remain there for at least two weeks.

The most important thing is to immediately call a physician as soon as any of these symptoms appear. If it is not possible to get medical advice at once, this outline of the important points of the treatment will instruct you as to

what to do for yourself. Should the bleeding become profuse, have someone elevate the foot of the bed two feet. When the hemorrhage has stopped the bed may be gradually lowered. Remember that rest in bed for at least two weeks is important.

When miscarriage actually occurs it is of the utmost importance for your future health that your after treatment be exactly the same as though you had been delivered at the full term. The details of this treatment after delivery are taken up in a later chapter. When the mother gets on her feet too soon, severe displacements and chronic invalidism are almost sure to result. After miscarriage the uterus is in an irritable condition and demands prolonged and complete rest. If another pregnancy occurs within a year's time after a miscarriage, there is grave danger of the same result.

THE PREMATURE BABY

The nearer a baby approaches his full term at birth the greater is his chance for survival. Weight alone is not a guide as length is most important. It has been found that when the length is 17 to 18½ inches the chances of living are fifty to ninety-six per cent. From 17 inches to 16 inches the chances are fifty per cent down to 20 per cent. (See page 27.)

Babies weighing less than four pounds rarely live.

The premature baby will lie in a quiet apathetic state, moving its arms and legs very little if at all. The cry is a feeble wail in sharp contrast to the lusty cry of the full-term baby. The muscles are weak and flabby, the breathing irregular and shallow and the proper amount of air is obtained with great difficulty. This accounts for the bluish tinge of the skin so commonly observed in premature babies. Another peculiarity of the skin is a yellow or jaundiced look which is very slow in disappearing.

The temperature is below normal and must be taken by the rectum. Every effort must be put forth to keep the body temperature as near normal as possible; life depends upon this. A special small basket that can be kept warm with hot water bottles and packed with cotton in which the baby can lie with little handling, warm and out of any draught, is fully described with the proper care for the premature baby in the volume, *The Proper Feeding of Infants*.

The muscles of the mouth are often too feeble to permit nursing and these premature babies must be fed the mother's milk from a medicine dropper. The organs of digestion lack full development so that the premature baby deprived of breast-milk has a greatly lessened chance of survival.

Causes of Prematurity.—The physical condition of the mother is the most important of the many causes of prematurity. Heading the list are tuberculosis, alcoholism, and inherited chronic blood diseases. The diseases in mothers which are most often the cause of prematurity are the ones which in my opinion should be considered sufficient reason for a woman's not attempting pregnancy.

Women suffering from chronic inherited blood disease, tuberculosis, Bright's disease, heart disease, severe anaemia, exothalamic goitre, (this is the pernicious type of goitre, accompanied by bulging of the eyeballs and rapid pulse, and does not refer to the ordinary simple goitre) will, if they become pregnant, aggravate their own condition and endanger their lives during pregnancy and confinement. In the vast majority of cases they will bring into the world children who have far less than an even chance to survive even when surrounded by the most favorable of circumstances. If these babies are carried to full term, they will usually be congenitally weak with many of the characteristics of premature infants and with all the attendant difficulties to overcome in the effort to save their lives.

Accidents occurring in the latter months of pregnancy, especially if associated with physical injury or nervous shock, are extremely liable to precipitate labor.

CHAPTER IX

MATERNAL IMPRESSIONS AND REAL PRE-NATAL INFLUENCES

Long before most women know that they are pregnant the infinitely tiny cells of the impregnated ovum have arranged themselves in the various groups that evolve into the organs of the child. Only occasionally do the cells fail to assume the normal order, a few from one group becoming by some mistake of nature attached to another group. This results in deformities and markings. This accidental misarrangement of the cells of the embryo takes place entirely independent of any influence of the mother, oftentimes before she is even aware of its existence.

In the early weeks of pregnancy the growing embryo has assumed complete shape and the forming or any possible deforming in the grouping of the cells has been brought about. Such events as unpleasant sights or tales or news, which mothers sometimes ascribe as the cause of marking their babies, take place invariably after this early arrangement and adjustment of cells in the embryo. Therefore, their connection

with any marks found on the child at birth is illogical when we know that by the end of the eighth week the form of the fetus is definite and is not subsequently altered.

We know that some children have been made defective because the mother has been allowed to go through long, protracted and difficult labor and the baby has been injured during birth. But our modern skill in confinement has done away with these mishaps which occurred to our mothers and grandmothers.

We do know definitely and positively that vice and alcoholism are the two greatest influences in the production of both physical and mental mal-development in our children. It is a well-established fact that alcoholism of one or both parents greatly increases the number of premature and still-births and the number of defective children.

One interesting fact is that in alcoholic families, the mortality is least among the first-born and increases steadily in the later children. One well-known physician reports a case of a normal woman married to a sober man who had three normal, sound children. After his death she married a habitual drinker and gave birth to three defective children, one an epileptic and two who died of tuberculosis. Alcoholism as a prenatal influence in the production of epilepsy in the children has been an appalling fact in my experience. Among eighty-three epileptic girls

in one institution I found sixty born of alcoholic parents.

The subject of consanguinity or blood relationship has perhaps been more thoroughly investigated by Alfred H. Huth than by any other writer and to him we are indebted for the following information: "There is an entire lack of evidence that consanguinity is in any way a factor in causing mal-development excepting as it perpetuates and emphasizes any defects or weaknesses in the families in which this inbreeding occurs."

Tubercular children born of one or two tubercular parents are not tubercular at birth but are infected after birth through the mother's breast-milk and through contact in the home life with the parents. Our greatest authorities on tuberculosis declare that if the child born of tubercular parents is not allowed to come in direct contact with them for the first five years of its life, the chances of immunity are equal.

Nature has also fortunately made provision in the case of the mother suffering from an inherited or acquired blood disease, in that she is many times sterile and if pregnancy takes place it does not often carry the child to the full term. I say fortunately, for in cases of syphilis the results are much the same as those following alcoholism.

I want to emphasize the proper care of the

nervous system in its relation to successful motherhood. I want to address not only the prospective mother, but the father as well, and all those whose privilege it is to companion the woman whose body is the mysterious portal of a new life.

A noted American surgeon a few years ago startled the medical world by the publication of his exhaustive experiments and studies in the relationship of health and nerve exhaustion. He proved clearly and beyond a question of a doubt how our nerve energy, which might be compared to electrical force, is generated and stored in our body tissues as we sleep and rest. He showed how mental energy used up the store of this nerve reserve power more rapidly than physical work. He demonstrated how fear, worry and pain depleted the reserve and even exhausted it, emptying the storehouses completely in a few moments at times of great stress. Of the many facts brought to light by these studies perhaps the most interesting was the location in the body of these reserve stores of nervous energy. The brain quite naturally was the seat of one of the storehouses, but the finding of the other two reservoirs in the liver and the super-renal glands located above the kidneys was a surprise.

When the supply of potential energy stored up in these three places is totally exhausted, complete collapse of our physical forces is the

result. Fainting is an illustration of this condition and shock following a surgical operation is another example. Even when the conscious mind has been put to sleep by the use of an anaesthetic, the nerves are carrying messages of pain from the seat of the operation to the fountain heads of stored-up nervous energy, and as a consequence this energy is rapidly depleted.

Not a single function of the body will operate normally if you allow anything to deplete your controlling and sustaining nervous force.

Worry, fear, anxiety, lack of physical and of mental rest will prevent you from laying in this needed store of nerve energy. And if you approach the period of confinement nervously worn out and exhausted with the care of the household, full of fear and apprehension, you can readily see how quickly your small reserve will be exhausted.

If, on the other hand, husband, relatives and friends co-operate with the prospective mother during the latter months of pregnancy, and free her from worry, petty annoyances and anxiety which increase the nervous strain of her normal life, it will do more than all other measures to insure a successful confinement.

It is thus easy to understand why women who are able to avail themselves of the advantages of a hospital for their confinement, pass through this and the convalescent period so successfully.

They are entirely separated from the cares and worries of the household. They enter the hospital sustained with the confidence that everything is at hand to render them the best service possible and to reduce to a minimum the anxieties associated with the care of the new baby.

While the energy storehouses are being refilled after confinement, the mother must continue her rest at all expense. The one who struggles out of bed in a week or ten days to assume charge of her home and new baby, keeps her nervous and physical system exhausted, and is the one who nearly always fails to successfully nurse her child. The mother who follows the common practice of getting back to her old routine of duties two weeks after her baby is born, after two or three pregnancies is the one who begins to show signs of breaking.

CHAPTER X

PREPARING FOR CONFINEMENT

The greatest danger to the mother at the time of confinement is infection. Infection may not only endanger her life but be responsible for years of chronic invalidism. Practically the whole secret of successful confinement is found in the word asepsis. The thorough sterilization of everything that comes in contact with the mother during labor cannot receive too strict attention.

The dangerous infection that results from the failure to sterilize everything used about the mother during labor, and one often carried into the vagina by examinations at this time, is that resulting in child-bed fever, medically termed puerperal sepsis.

This infection not only endangers the mother's life but it is contagious and can be carried from mother to mother on instruments, on clothing and by the nurse or physician. This fact was given to the medical world by the famous Dr. Oliver Wendell Holmes as long ago as 1843.

It is a strange fact that everyone realizes how important it is to observe strict cleanliness and asepsis, whenever a surgical operation is per-

formed, yet when a mother is delivered of a child, in which there is almost equal chance of infection, there is such carelessness and neglect of the details of asepsis.

If the following simple but essential precautions of a character that can be readily carried out in every home are taken, an infection will rarely occur, and if an occasional case should follow, despite all possible safeguards, it will be mild and easily controlled.

A Word About Sterilization.—All harmful bacteria can be killed in one half hour by steam, or in a hot oven at baking temperature, or by boiling, so that complete sterilization can readily be accomplished at home. Those who live in or near cities can obtain at a nominal cost from most hospitals a complete carefully sterilized outfit to be used at the time of labor.

It would be a good investment for the prospective mother to purchase and have ready for use two pairs of surgeon's rubber gloves. No matter how thoroughly the hands are scrubbed they cannot be completely sterilized, yet a pair of surgeon's gloves can be quickly and completely sterilized in boiling water, and if there is any suspicion that they may have become soiled they can be instantly rendered safe again by plunging into boiling water. During the process of delivery they can be repeatedly washed in a strong antiseptic solution while still on the

hands, and then rinsed in plain sterile water. With an extra pair of absolutely sterile gloves on hand, at the moment for actual delivery the first pair can be discarded for the fresh pair. The use of rubber gloves should in nowise diminish the care with which the hands are scrubbed before putting them on. These precautions are the greatest insurance against the possibility of child-bed fever or other infection.

ARTICLES NEEDED

The following articles are needed for confinement and should be ready for use three weeks before the expected date:

- 6 Sterile bed-sheets.
- 12 Sterile hand towels.
- 6 Pads, one yard square.
- 1 Piece of rubber sheeting or table oil-cloth long enough to stretch across the bed and tuck in, and $1\frac{1}{2}$ yards wide.
- 3 Abdominal binders, $1\frac{1}{4}$ yards long by $\frac{1}{2}$ yard wide.
- 1 25-yard package of sterile gauze.
- 2 One-pound packages of sterile absorbent cotton.
- 1 Package or one yard of umbilical tape.
- 1 Six-ounce bottle tincture of green soap.
- 1 Jar sterile vaseline.
- 1 Quart of boric acid solution in a glass stoppered bottle.

- 1 Bottle of Lysol.
- 1 Bottle of bichloride tablets (blue), labeled poison.
- 1 Ounce of one per cent solution of silver nitrate.
- 1 Six-ounce package of boric acid powder or Dermatol powder.
- 1 One-half-pound package of boracic acid crystals.
- 1 Two-ounce bottle of tincture of iodine.
- 1 Three-ounce bottle tincture of benzoin compound.
- 1 Pint bottle of alcohol, ninety-five per cent.
- 1 Three-ounce bottle of fluid extract of ergot.
- 2 Pairs of surgeon's rubber gloves .
- 2 Nail brushes.
- 2 Small camel hair brushes.
- 2 Eye droppers.
- 1 Two or four-quart fountain syringe.
- 2 Glass douche tips.
- 1 Douche pan.
- 3 Porcelain or white-enamel medium size wash basins.
- 1 Water pitcher.
- 1 Large pail for waste.

Sterilizing the Articles.—Of the two methods of home sterilizing, dry heat and steam or moist heat, the latter method is better.

Towels, sheets and pads should be tied into small bundles by being wrapped in squares of

clean unbleached or old muslin and pinned. To sterilize by steam or moist heat, take the wash boiler and suspend inside like a hammock from handle to handle a strip of muslin a little narrower than the width of the boiler. Below this hammock of muslin have two or three inches of water in the bottom of the boiler. Place the bundles in the hammock, cover the boiler and let the water boil briskly for an hour. The hot steam penetrates the bundles and sterilizes the contents. After the steaming, place the bundles in a wire drain suspended somewhere in a place where they will safely dry out and when thoroughly dry pin the sterile supplies in a clean sheet that has been thoroughly boiled and put away ready for use.

To sterilize by dry heat, put the wrapped bundles in a thoroughly clean pan in a slow oven and leave them there until the covering is scorched a light russet brown. Nail brushes and scissors should be boiled in a basin during labor and not taken from the water until used. Any instruments the doctor uses should be boiled in a separate basin. The surgeon's rubber gloves should be boiled in a basin and left in the water so that the physician can readily slip them on his hands in the sterile water, when the moment comes.

Uses of the Articles.—The sterile sheets are not to be used on the bed until labor begins. The

sterile towels are for the doctor's and nurse's hands. The six pads, made of cheese cloth and filled with cotton batton, are used one by one under the patient during labor, being removed as soon as soiled. The rubber sheeting or oil-cloth is stretched across the bed under the sterile sheets to protect the mattress. Abdominal binders are used after birth. The sterile gauze is used for dressing the navel cord and is also used with folds of the cotton in making the napkins which fasten to the binders. The sterile cotton is also used as sponges or pledgets. The umbilical tape used for tying the cord can be bought in jars or packages, or you can purchase the narrow cotton tape one-eighth inch or less in width and sterilize it with the other articles.

The tincture of green soap and the nail brushes are used for scrubbing the hands of the doctor and nurse. Vaseline is used for lubrication and about the mother's nose and mouth if chloroform is given. The Lysol is the antiseptic used in rinsing the hands after scrubbing and is also used in the douche bag for irrigating the external parts. During labor a one per cent lysol solution should be kept ready for use in two basins, one in which the doctor rinses his hands can also contain the cotton that he uses as sponges. The other is to hold the instruments after they have been boiled.

The bichloride tablets are used as directed,

with the water in a porcelain bath-tub, or other container not tin or tin lined. This is for immersing the basins, pitcher, douche pan and syringe to sterilize them just before use. The directions on the tablets tell how many tablets are to be used in water to make a one to five thousand solution.

Tincture of iodine is used by the doctor in sterilizing his finger nails after scrubbing his hands. He can do this with a sterile swab of cotton on a tooth-pick or dip his fingers into the iodine. After the cord is cut the stump is painted with the iodine solution used on a swab of sterile cotton. The one per cent solution of silver nitrate is to be used in the baby's eyes immediately after birth. One drop is put in each eye by the eye-dropper. Boric acid solution is made by putting one level teaspoonful of the crystals into each pint of boiling water and this is kept in the glass-stoppered bottle ready for use. A quart should be made up. It is used to wash out the baby's eyes a few seconds after the silver nitrate has been dropped in, and also for cleansing the mother's nipples before each nursing.

The alcohol is used whenever needed in various ways, in washing off the scissors or brushes, the doctor's hands and later in an alcohol rub for the mother. The boric acid or dermatol powder is used for dressing the navel cord. The ergot is given by the physician to the mother

as soon as the uterus is completely empty, the first dose usually being one teaspoonful. This is used to contract the uterus and prevent hemorrhage. The tincture of benzoin is applied to the mother's nipples if they become cracked or sore after delivery. It is painted on with the camel hair brushes, then washed off just before nursing with boric acid solution on sterile cotton swabs. The fountain syringe and glass tips are used in giving a douche to cleanse the external parts before and after labor. The douche pan is used for the douche and also as a bed-pan while the mother is in bed.

PREPARING THE ROOM

The room in which you expect to be confined should be clean, light and well ventilated. The furniture should be limited to necessities. The bed, two or three chairs, one table for dressings and another for wash basin, pitcher and towels. There should be no needless hangings or pictures to collect dust. Around the bed the carpet should be covered with several layers of newspapers and over these should be tacked a sheet. Before this the dust should be taken from the carpet by a wet cloth.

The bed should stand out in the room so that the physician and nurse can pass on either side and it should face the light if possible. The mattress should be firm and smooth and not hollow

or sagging in the middle. If the springs are not strong enough to keep the mattress level, place an ironing board or a table board beneath the springs. The single bed is best for confinement as, being narrower, it is easier for the physician to work about.

Across the center of the bed and directly over the mattress stretch the rubber sheeting or oil-cloth. Tuck it well under the sides and fasten into the mattress by large safety pins to keep it from slipping. Over this place one sterile sheet, tucked in at all sides. Across the bed where the mother's hips rest place a sheet folded until it is about a yard wide and between the folds place several thicknesses of stout paper. This is a draw sheet which can be pulled out at the end of labor leaving the clean sheet below. Directly beneath the mother's hips are placed the sterile pads, used one by one and discarded as soiled. Over the mother is placed an unfolded sterile sheet. The night-gown should also be sterilized.

Three or four weeks before confinement your physician should make an examination to see that the baby is in the proper position and that everything is progressing favorably toward the time of labor. He will talk with you about all preparations, see that you have properly sterilized everything needed and he will leave instructions as to when you are to notify him.

THE BABY'S FIRST CLOTHES

Layette Designed by Mary A. Bartley, Collegiate and Polytechnic Institute, Brooklyn, N. Y.

In order that the delicate baby skin be not irritated the clothing should be soft and light; not only soft in surface but soft in texture as well. The material ought to be porous and not too heavy, in order that evaporation of perspiration and proper ventilation of the skin may take place.

Simplicity should be the keynote of the baby's wardrobe. The clothing should be simply made and the whole arrangement as simple as possible. Every unnecessary garment renders the exertion of being dressed and the burden of the clothes that much greater.

Most important of all, the baby's clothing must be warm, for during infancy particularly, children are unable to resist the effects of cold. Garments which are loose and those made of material of loose textures are warmer than others on account of the air which they retain in their folds, for air is a very poor conductor of heat. Wool is the material which best answers all these requirements, and with the exception of the diapers, all the clothing which comes next to the skin should be made at least partly of wool.

There are some objections to the all-wool garment, however. First, it has a great tendency to shrink and in so doing becomes very harsh

and tight and proves very irritating to the skin, especially in hot weather. So instead of the all-wool garment, the cotton and wool or the silk and wool fabrics could be used. In the very warmest weather, thin cotton or silk and cotton garments may be worn.

The *band* consists of a straight piece of flannel, all-wool or silk-and-wool, pinked or bound around the edge and tied with flat knots of uncurlable tape. This garment may also be knitted or crocheted and could be easily made at home. It should be wide enough to extend from the hips well over the ribs and should be about six inches in width. It may also be made with shoulder straps and little tabs in front and back to which the diaper may be pinned. Four of these bands are needed.

The *diapers* should be made of soft light absorbent materials. Linen and cotton diaper cloths are the best, each having its advantages. Linen is cooler and less bulky, while cotton is absorbent. Canton flannel should not be used as it is too little absorbent and soon becomes harsh with laundering. The diapers for the early months of life should be one yard long by one-half yard wide, increasing in size as the child grows.

The Vanta diaper, which has a dart taken in the back to give shape and which may be tied with non-curlable tape, may be purchased in the

shops, as may also the Arnold diaper, that also has the dart in the back but with which pins are used. From four to six dozen are needed.

The *shirts* must be made of combination silk and wool, because of warmth and for laundry purposes. They may be double-breasted and tied with non-curlable tape, or may be button-holed down the front. They should have high neck and long sleeves and should reach well below the hips. From four to six are needed, but not less than four.

The *socks* should be crocheted or knitted of silk thread or very soft yarn and should reach half way to the knee or higher. Six pairs are needed.

The *night gowns* are commonly made of cotton stockinet with a drawstring at the neck and sleeves and hem, or they may be closed at the bottom with a long opening in the back. For summer this garment is usually made of muslin, thin outing flannel, cambric, or nainsook. From four to six are needed, but not less than four.

The best material for the *petticoat* is white flannel. This may be made in one piece, buttoned on the shoulders and bound around the neck and armholes, or it may consist of a straight full skirt of flannel gathered to a straight muslin band which laps over in the front and is pinned. For warm weather this garment may be made of lawn, batiste, nainsook, and fine linen is often

used. Four flannel and four cambric petticoats are needed.

The *dress* is usually made of nainsook, lawn or batiste, tucks or gathers are used for fullness, with inverted plaits under the arms which throw fullness across the waist. The length of the dress should not be more than twenty-six inches. Six are needed.

In winter there is needed a long very warm *cloak* of some woolen material such as cashmere, serge or muslin with a quilted lining; also a warm, thick, lined cap or *hood* covering the ears. For summer the coat is made of light weight material without the quilted lining, or of pique, and the cap of silk or thin muslin. *Mittens* of silk or silk-and-wool are needed for the winter months.

There should also be a warm *shawl* or shoulder blanket made of very soft flannel, which can be thrown about the baby and over its head when carried about the room. Two of these are needed.

A list of articles needed is as follows:

Bands.....	4
Diapers.....	4 to 6 dozen
Shirts.....	4 to 6 (preferably 6)
Socks.....	6 pairs
Night Gowns.....	4 to 6 (preferably 6)
Petticoats.....	4 flannel
Petticoats.....	4 cambric

Dresses.....	6
Coat.....	1 (winter)
Coat.....	1 (summer)
Hood.....	1 (winter)
Caps.....	2 (summer)
Mittens.....	2 pairs
Shoulder Blankets.....	2

CHAPTER XI

THE BIRTH OF THE BABY

Two or three weeks before the date of confinement, the womb drops by a process commonly called "settling." The fetus sinks lower into the pelvis. The prospective mother usually feels more comfortable because breathing becomes easier. The settling, however, brings pressure to bear on the nerves passing to the lower limbs and the mother experiences a cramping sensation in her legs. The settling uterus once more presses upon the bladder causing frequent urination as in the early months.

The beginning of labor may be heralded by three different signs. The most common is pain, regular and recurring. Another sign, which may precede the pain, is a sudden gush of water. Another, less frequent sign, is a bloody discharge.

Labor Pains.—The sensation of pain usually comes in the back or lower abdomen. At first this is slight, recurring after hour or half-hour intervals of rest. These pains may be mistaken for colic. They soon increase in strength and frequency if true labor pains. When they appear regularly every thirty or forty minutes and

last for a few seconds, and when at the time of pain the abdomen feels tense or hard underneath the hand, they are true signs of approaching labor and your doctor must be notified at once.

There will be times when you are in doubt regarding these pains because it is not uncommon to have preliminary or "false pains" two or three weeks before labor. These are irregular and may cease entirely, or, when they make their appearance close to the time of labor, they may pass directly into true labor pains which then become of the regular character.

Vaginal Discharge.—During the latter months of pregnancy there is almost always a considerable discharge of mucous from the vagina. This is of no special significance and is often mistaken for a leucorrhoea. As the time of labor approaches there may occur a sudden gush of water from the vagina which is due to an early rupture of "the bag of waters" and should be interpreted as a sign of approaching labor. This rupture is usually followed within a very short time by the regular labor pains. In rare instances the bloody discharge is the first sign of labor and this may be quite profuse. It is commonly followed promptly by the regular labor pains.

The First Preparations.—If you are fortunate enough to avail yourself of hospital care these first preparations will all be directed for

you after you reach the hospital. In case you are employing a trained nurse she will have reached your home by this time and will personally take charge of these details. Left alone the first thing is to take a good soap-suds enema as soon as you decide from the symptoms that the time of labor is near. It is of utmost importance that the lower bowel be thoroughly clean.

Next take a warm bath, scrubbing the entire body well with soap and water, giving especial attention to a thorough scrubbing around the genitals. In hospital confinements the genitals are shaved. For the home confinement it is well to clip the hair.

If you are going to the hospital you will have engaged your room long before the date of confinement, and it is not necessary to start for the hospital until definite signs of the onset of labor, such as pains coming at regular thirty or forty minute intervals, the rupture of the "bag of waters" or the bloody discharge. If the trip to the hospital requires an hour and a half to two hours, or if the mother is nervous, she should go there two or three days before the date of her expected confinement. Everything to be taken to the hospital should be packed a few days before the expected date.

The only hospital requirements are the night-gowns, bathrobe or dressing gown and slippers and something to throw over the shoulders when

sitting up in bed. All of the surgical dressings and medicines used before and after labor are supplied by the hospital. In addition take the clothing needed by the baby for the first three weeks as no clothing for the baby is supplied by the hospital.

LABOR

As the pains become more severe they begin to appear at regular intervals. The intensity increases and the intervals shorten until they come every three to five minutes, and when the time for expulsion of the fetus is near the pains come every minute or half minute.

The process of labor is divided into three stages. The first stage that is by far the longest, includes the whole process by which the birth canal is gotten ready. The second stage is the actual passing of the baby through the birth canal into the world. The third stage is the time which deals with the passage of the placenta or after-birth.

First Stage.—During the first stage, your physician will find it necessary to make one or more examinations to determine whether the uterus is fully dilated and the head properly presented. A careful physician makes as few of these as he safely can, realizing the danger of carrying in some infection on his hands or from around the vagina. The number of examinations necessary

may be only two and in other cases ten or more.

As the pains progress the mouth of the womb begins to dilate. This is brought about by the muscles of the body of the womb as they contract and pull away from the mouth to open it, and also by the "bag of waters" or amniotic fluid which is being pushed as a wedge into the mouth of the womb.

At times this "bag of waters" ruptures in the very beginning. Again it may rupture soon after labor has started, part of it coming away with a gush and the remainder dribbling away during the entire process of labor. When this happens we have what is known as a "dry birth." Usually the "bag of waters" remains intact as a wedge until the mouth of the womb is entirely dilated and then ruptures, expelling all of the water at once.

During the first stage of labor, the patient as a rule is quite comfortable between pains and may rest or walk about as she pleases. When the pains or contractions of the uterus appear, do not strain or try to bear down but allow them to proceed normally. If you are walking about when the pains come on it is good plan to support yourself by a chair or at the foot of the bed while they last. As the baby's head presses down you will feel a frequent desire to have a movement of the bowels and to urinate. This is simply caused by the pressure.

During the first stage there is no reason why you should not drink a little coffee or hot milk or gruel. Don't take any solid food, because later the physician may decide to give you a little chloroform and it is then better not to have any solid food in the stomach. Furthermore, during the end of the second stage just before the baby is delivered, mothers frequently experience a desire to vomit and if there is solid food in the stomach it makes this feeling worse.

Second Stage.—After the mouth of the womb has become completely dilated, preceded as it usually is by the rupture of the “bag of waters,” there commonly occurs a considerable discharge of blood. At times this is not present at all. The mother will feel a desire to bear down and this she can safely do, even assisting by pulling on a sheet tied to the foot of the bed with her feet braced against something solid, bearing down only during the pains. As the pains grow more severe and frequent the patient feels the head of the fetus pushing downward into the vagina and the time of actual delivery rapidly approaches. It is at this time in labor that chloroform in small amounts is commonly given to relieve some of the pain. As long as the mother is organically sound there is no reasonable objection to its use. The chloroform must never be used at the beginning or during the first stage of labor unless actual operation is necessary.

But after the mouth of the womb is dilated and the head of the child is pressing down into the vagina, small whiffs of chloroform given just as the mother feels a pain starting and continued while the pain lasts, will greatly relieve her. Not enough is given so that she loses entire consciousness, and giving the chloroform at this time does not lessen the contraction of the uterus. Between pains the chloroform mask is usually taken away or is held so that the mother only gets a very small amount. Chloroform must never be administered unless a physician is present to personally direct its use.

As the pains increase, the top of the baby's head appears and as it passes through the outlet it is rotated upward and the full face comes into view. There is usually a short rest and then the remainder of the body is expelled, followed by a sharp gush of blood and water.

Third Stage.—Following the delivery of the baby there are several minutes of rest. It is not a practice to tie off the umbilical cord at once. Some blood is being pumped through it even after the baby has reached the outer world. However, in a few seconds the pulsation in the cord ceases, and about an inch and a half or two inches from the baby's body the umbilical tape is passed once or twice around the cord and firmly and securely tied in a hard knot. At a point about two inches beyond this, toward

the placenta, the umbilical tape is again firmly tied about the cord and with the sharp scissors the cord is severed between these two places that have been tied.

As soon as the baby is born, the physician immediately inspects the perineum to see if any tears have occurred. This is of utmost importance and should always be insisted upon because tears of the perineum allowed to go unrepaired result in all forms of pelvic displacements and are responsible for much invalidism.

It is very easy to give the mother just a little more chloroform (or a complete anesthetic if needed), make her momentarily insensible to pain, and put in one, two or three stitches as may be found necessary. These stitches properly taken, correctly bring together the raw edges which will have completely and solidly healed by the time the mother is able to be out of bed.

As soon as the baby is expelled the uterus becomes much smaller and harder and after a period ranging from ten to thirty minutes, pains will again appear and the placenta will be expelled. This may take several minutes. Very commonly physicians do not wait for Nature to accomplish this process, but from outside, through the relaxed abdominal wall, they grasp the uterus firmly in one hand and by forcible downward pressure expel the placenta. The

expulsion of the placenta is followed by a great gush of blood.

As a rule the physician or nurse keeps a hand over the uterus through the flabby abdominal wall, keeping up a gentle squeezing or massage-like pressure over the uterus. This helps the uterus to contract and also prevents serious hemorrhage from occurring. The right hand of the nurse or doctor is used to keep up this pressure and it should be continued for several minutes until the uterus feels hard and firm. If the uterus, under the hands, shows any tendency of relaxing, it may be necessary to keep up this pressure thirty or forty minutes or even longer.

If the mother has not been put completely under the influence of chloroform, just as soon as the placenta is expelled the physician orders one teaspoonful of the fluid extract of ergot to be given in a little water. This helps to contract the uterus and prevents hemorrhage. Many physicians prefer to use for the first dose of ergot a hypodermic of some sterile ergot preparation. This method has an advantage over the other as the ergot gets into the blood more quickly. If the mother has had an anesthetic she cannot immediately take it by the mouth.

While the uterus is being held through the abdominal wall to help its contraction, some one in attendance with thoroughly sterile hands

and sponges of sterile absorbent cotton dipped in the lysol solution, cleans away all of the blood from the thighs and external parts, always sponging from above downward. The great danger of sponging from below upward is the wiping of any fecal matter or contamination into the vagina. The draw sheet is then pulled out. A napkin of folded sterile gauze between the layers of which is laid a thick padding of sterile cotton, is placed over the external parts. The uterus now being well contracted the abdominal band is firmly pinned on, pinning from above downward so as to exert the greatest pressure over the top of the uterus. The sterile napkin is pinned to the binder and the patient is covered with clean sheets and warm blankets. A hot water bag is put at the feet because there is often a feeling of chilliness immediately after the baby is born. The room is darkened and the patient is then usually able to take a much needed nap.

The Use of Forceps.—In some cases there will be times when your physician may deem it necessary to use obstetrical forceps. Stories you hear about the dire results that might come to the baby through the use of forceps are the product of imagination. If during labor, the physician listening through your abdomen finds that the baby's heart beats are becoming too rapid, indicating suffocation, it is necessary

to hasten labor and get the baby into the open air as quickly as possible. Again, a mother may become exhausted from prolonged labor and the physician decides that it is wise to put on the forceps and greatly hasten delivery. There may be physical conditions in the mother which do not permit of long and hard labor and your physician's judgment as to using forceps at such a time must always be relied upon.

Delivery Without Medical Help.—During the last four weeks of pregnancy the prospective mother should never be left alone. If she is compelled to undergo the ordeal of confinement without medical help, she should make all the preparations as though a physician were going to be present. It might happen that a physician engaged for a confinement would fail to arrive. As the symptoms show that labor is in progress, the companion of the prospective mother should have all the dressings ready by the bedside but should not open them until they are actually needed.

Prepare the bed as already directed and have the two basins ready with the lysol solution. The companion should thoroughly scrub her hands with the green soap and water, using the nail brush to thoroughly scrub her nails and she should then paint tincture of iodine all around the nails. She should stand by the bed without touching anything or attempting

to make any examination or interferring in any way with the progress of labor.

As the mother feels the head pressing down on the vagina, accompanied by a desire to bear down, she can help by pulling on the sheet tied to the foot of the bed and with her feet braced against something solid. When the head is born, if the baby does not look blue, the attendant is still to let things alone because the remainder of the body will be expelled in a few seconds. When the head appears should the baby look blue or black in the face and about the head the attendant should grasp the head with one hand underneath the chin and the other over the back of the head and pull steadily downward with considerable force. The mother can also help at this time by putting her hands over the abdomen and pressing down against the top of the uterus which she can easily feel through the abdominal wall.

Just as soon as the baby is born it will cry. If it does not, and does not appear to be breathing, grasp it by the legs and hold it up, the head hanging downward, and slap sharply across the back. This is to be done right away before the attendant tries to tie the cord. The baby usually begins to breathe promptly. Lay the baby down quickly between the mother's thighs and tie the cord in the way already directed. When you pick the baby up

by its legs be careful not to pull the baby up so high that the cord will be stretched and broken.

One thing the attendant must do as soon as the head appears is to notice whether the cord is twisted around the baby's neck. If so, she should slip one hand down around the baby's neck and grasp the cord between her thumb and finger. With the other hand pressed over the top of the head, she should hold the baby back and with gentle traction slide the cord over the baby's head, thus loosening it. This is important because the cord can break in this position while the baby is being born, causing hemorrhage or strangulation.

In fifteen to thirty minutes the placenta will be expelled. This is preceded by a few sharp contractions of the uterus. The attendant can help this by pressing downward on the top of the uterus through the abdominal wall when the pains appear. No one must ever pull on the umbilical cord. As soon as the placenta is expelled, the mother can be given a teaspoonful of the fluid extract of ergot. The attendant can cleanse the external parts with the sterile cotton sponges soaked in the lysol solution, remove the draw sheet and put on the sterile napkin and binder as already described.

It is a splendid plan for the attendant to sit by the bed before putting on the binder and

firmly press on the uterus through the abdominal wall in the manner already described.

Be sure to pin the binder on very snugly. A very good practice is to twist a sterile towel as you would a rope and place it in a cuplike shape on the abdomen directly over the top of the uterus, which will be just a little above the pelvic bone. Pin the band over this very tightly. The patient can then receive a cup of hot milk or broth and be warmly covered.

In rare instances a baby is born in a position termed breach presentment, the lower limbs being born first. In such a case, as the attendant stands beside the bed, she should quickly wring out a towel from very warm water (100° which is a little warmer than body temperature) and wrap it about the baby's legs and buttocks as they come into the world. Then with both hands on the outside of the mother's abdomen, a few inches above the pelvic bone, press firmly and steadily downward in order to bring pressure over the top of the baby's head. The mother can also assist at this time by bearing down, pulling from the sheet tied to the foot of the bed. This hastens the birth of the head which is important.

Immediate Care of the Baby.—There will be times when the baby does not begin to breathe immediately after it is expelled. The stimulating effect of the air on the baby's skin will

cause him to inhale quickly and fill the lungs with air. The baby usually utters a cry as soon as it is in the outer world, which is a very good indication that he is breathing. When the baby does not breathe at once it is usually due to mucous that has gotten into the throat. If the attendant will quickly wind a piece of gauze around her finger, open the baby's mouth and run the finger down the throat, she can quickly wipe away the mucous. She should then grasp the baby by the feet, holding him head downward, and slap him sharply across the back. This is usually all that is necessary.

There will be times when the baby will not begin to breathe even after this procedure. A tub of warm water should be ready and remembering that the cord has already been tied, you can plunge the baby into the warm water. Hold him with your hands behind his back and your fingers under his armpits, which holds the head out of the water. Move him about in the water for just a few seconds. A deep inhalation of air will unusually be taken as soon as the baby touches the water.

In extreme cases, we find that dashing a little cold water on the baby's limbs and around his chest and abdomen, then plunging him back into the warm water, will cause prompt breathing.

Never give up, because a baby may not show

signs of breathing for many minutes and still be revived. A practice resorted to in some hospitals in extreme cases is to quickly wrap the baby in a blanket and lay him over the side of a table with the head hanging over the edge face downward. He is then gently rolled from side to side, never rolling him clear over on his back, but up on one side and then up on the other side. This repeatedly has caused very badly asphixiated babies to breath within a few minutes.

Twilight Sleep.—One word about twilight sleep; it never should be used in the home. Even in the hospital, with all available skill at hand, its employment is attended with considerable danger, not only to the mother but to the unborn baby. After a most thorough trial in which it was used in several hundred cases in one of our largest maternity hospitals, its use was entirely abandoned, being declared unsafe and unreliable.

CHAPTER XII

CARE DURING THE PUERPERIUM OR PERIOD AFTER LABOR

The period immediately following labor, which lasts for six weeks or more until the uterus returns to its normal size, is known as the puerperium.

As soon as labor is accomplished the mother is usually thirsty and after a few sips of water will fall asleep, waking much refreshed and with the skin moist with perspiration. She may have a distinct chill directly after delivery. This is of no significance if not associated with fever and promptly passes as she is made warm and comfortable. The smarting and burning pain in the external genitals will last for a time.

After-pains.—Many times, painful contractions of the uterus continue after the birth of the child. They are more common in subsequent confinements than with the first child, and often appear only when the baby is put to the breast. They are probably many times due to the clots of blood or pieces of retained membrane which the uterus tries to expel. The

practice of giving fluid extract of ergot four times a day for four or five days in order to keep the uterus well contracted to prevent hemorrhage, is also beneficial in relieving these after-pains. When the pain is severe the physician sometimes finds it necessary to give a sedative.

Pulse and Temperature.—The pulse usually becomes much slower right after delivery with a corresponding rise of temperature of half a degree or slightly more. Both temperature and pulse should return to normal by the end of thirty-six hours. A more serious rise of temperature is discussed later in this chapter.

Respiration and Skin.—The breathing is slightly slower than normal and the skin throws out a great deal of perspiration during the first week so that the mother should be warmly covered and the bed kept out of a draught. The daily warm sponge bath should be given in bed.

Stomach, Kidneys and Bowels.—For the first two or three days, until the milk comes, there is little desire for food. The kidneys become very active for the first twelve or twenty-four hours although urine may not be passed, the bladder being able to retain large quantities at this time. Albumin is often found in the urine after labor but this is of no significance if the kidneys were all right previously, and if it

disappears within three or four days. Because great pressure has been suddenly taken from the bowel, it may remain dormant until a cathartic is given. Inasmuch as the bowel was well emptied before confinement and little or no food taken soon after, there is only a slight residue.

Weight.—With the delivery of the baby there is a sharp loss of weight. This loss is enhanced by a free excretion from all the organs and by the slight amount of food taken during the first days. This loss is regained by the seventh or eighth week and there is a return to the normal weight as before pregnancy. Very delicate mothers and those who do not nurse their babies may not entirely regain this weight.

The Nervous System.—After delivery the mother is prone to be nervous and irritable and this is emphasized by the after-pains, by the attempts of the baby to nurse, or by any outside disturbances. As this may result in a rise of temperature, all excitement should be prevented.

EARLY MANAGEMENT

The management of the mother during this period divides itself into two important heads; cleanliness and rest. The physician should remain with the mother an hour or more after delivery to see that everything is progressing

favorably and that she is as comfortable as possible. The external genitals have been cleansed, the binder put on, the sterile napkin adjusted and the bed and night-clothing made clean. He will caution the mother to lie quietly on her back with her head low, because raising it too high on pillows immediately after labor may result in dizziness.

Internal douches are not given unless a high temperature develops with foul-smelling lochia. The genitals are kept clean by an external douche. The bedding must be thoroughly clean and the lying-in room carefully ventilated.

As soon as the placenta is expelled the physician gives the ergot. This treatment should never be omitted. After the mother's first hour of rest another half teaspoonful should be given and followed for the next five or six days by a half teaspoonful four times daily. The firm contraction of the uterus is an important safeguard against the development of child-bed fever, or puerpal sepsis.

For several days following labor there will be a moderate bloody discharge from the vagina. This gradually grows paler in color and disappears. This is called the lochia and when everything is progressing favorably should have no foul odor. A disagreeable odor at once suggests the possibility of a piece of the placenta having been retained in the uterus, or of an

infection which has gained entrance at the time of labor. If accompanied by other symptoms such as chills and high fever, this calls for immediate attention.

One thing that should always be secured is a good clinical thermometer with which to keep a record of your temperature. A little rise right after labor is not uncommon, but a rise of temperature after thirty-six hours may be a sign of infection and the forerunner of child-bed fever. On the other hand, a rise of temperature may be due to constipation, or to the coming of the milk, especially when the breasts are very tense, or to sore nipples and to anything that may excite or worry the mother. But when the fever comes preceded by a chill, when the lochia begins to have a foul odor, and when the mother is greatly prostrated with headache, dry mouth, and a temperature showing rapid rise and fall; these signs of child-bed fever call for immediate attention. If the foul odor of the lochia is not accompanied by these other symptoms, the piece of retained placenta or membrane may be thrown off spontaneously, if not the physician may find its removal necessary.

When child-bed fever develops the mother should remain in bed quietly. Until medical help can be obtained have your attendant or nurse give one-half teaspoonful of ergot in water every

three hours and place an ice-bag or cold applications low down over the abdomen. Give an absolutely sterile douche as hot as can be borne, proceeding as follows: The douche bag and douche point, the latter preferably of glass, must be sterilized by boiling. Use a two-quart douche made of water which has been boiled and containing one teaspoonful of lysol (one-half teaspoonful to the quart). Take this while lying flat on the back, using the douche pan in bed, two or three times during the day. The bowels must be promptly and completely emptied by a dose of castor oil or Epsom salts. The diet must be semi-liquid, consisting of broths, soups, milk, soft eggs and custard, with nothing solid. Follow this advice until your physician arrives and see that he comes as quickly as possible.

Hemorrhage.—If at any time during the course of your recovery you should suddenly start to flow very freely, send for your physician immediately and until he arrives lie flat on your back in bed. Remove the pillow and have the foot of the bed elevated two feet on blocks or chairs so that your blood flows toward the head instead of toward the feet. Take at once one teaspoonful of the fluid extract of ergot. Keep perfectly quiet, do not attempt to get on your feet. When your physician comes he may find it necessary to tightly pack the vagina with sterile gauze. He will advise you to keep

off your feet for a number of days until all flowing has ceased with no further evidence of it for several days.

Care of External Genitals.—The napkin put on after delivery should always be of sterile gauze, and between its layers should be sterile absorbent cotton. This is important because all the lochial discharge must be absorbed in the napkin and not allowed to accumulate in the folds of the skin. The external genitals should be cleansed every six hours and a fresh napkin put on. For this cleansing use a lysol solution made by putting one teaspoonful of lysol in a quart of water which has been boiled. Use it warm in the douche bag and irrigate the external parts. Have perfectly clean hands and make no attempt to separate the lips or to give an internal douche unless special indications arise, such indications as were spoken of in connection with child-bed fever and foul-smelling lochia.

While irrigating the genitals, sponge the folds of the skin around the vulva and inside the thighs with a sterile piece of gauze, remembering to wash from above downward. Cleansing can be done with the sponges of sterile gauze dipped in the lysol solution in a bowl instead of with the douche. It is necessary to observe strict care and cleanliness for there are always some abrasions in the genitals after child-birth and

these may easily become the starting point of an infection.

REST AND EXERCISE

Next to cleanliness the most vital part of the after-care is rest. The effect of the exhaustion of labor upon the nervous system is serious. All the ligaments and muscles of the pelvic organs have been greatly stretched and must return to their normal tone and strength to avoid permanent and disabling pelvic misplacements. All this can be brought about only through a sufficient period of rest. Failure to nurse the baby is oftentimes due solely to the mother's attempt to be on her feet and assume her household duties before her physical and nervous systems have recovered from the shock and strain of childbirth. A mother often remains nervous and exhausted for a long period. She is frequently told that this is of little consequence and that as soon as she becomes active she will feel all right and her usual health will be re-established. This can only be true when she takes the right amount of rest.

There are certain glands in the body which throw out internal secretions and when these glands are thrown out of balance ill-health results. These glands secrete normally only when the body receives sufficient rest and sleep. After confinement not only is extra rest needed but

oftentimes medicines as well. There should be no return to the routine work for some time. It is essential to have ten days or two weeks' rest in bed without visitors except for the members of the immediate family who realize the importance of quiet and freedom from all anxiety. All disturbances, even the care and crying of the new baby, should be removed as far as possible.

At the end of the week if everything has gone well the mother can be propped up in bed by pillows. At the end of two weeks or at the beginning of the third, she can begin to sit up a little in a chair each day, also to take a few steps, remaining up a little longer each time. When the mother sits up and if the weather permits, it is a splendid plan to get her outdoors for a little time each day. By the end of the fifth day she can be turned on her side, and it is then a good plan for her to lie face downward for an hour in the forenoon and an hour in the afternoon. This should be continued, increasing the time, for the entire period she remains in bed. After the first week she can try to sleep on her side or abdomen. This offsets the tendency of the uterus to tip backward from the constant lying flat on the back.

While the mother is resting she must be given her daily warm sponge bath, must have her

teeth cleansed regularly and her bedding and night clothes kept scrupulously clean. When she is able to be out of bed at the end of two weeks, she should be given a daily warm salt tub-bath. Sea salt should be used, or, if that is not available, use table salt, a level tablespoonful to each gallon of water. The brine bath aids circulation and has a very refreshing and stimulating effect.

After the fourteenth day, if the mother has gotten along without any set-backs, it is a splendid plan, while lying in bed, to take the following exercise to strengthen the abdominal muscles: Lie flat with the limbs straight and the heels held down, rise slowly to a sitting position without using the arms. This exercise can be taken two or three times during the day, raising just once to begin with and gradually increasing the exercise so that by the fourth or fifth week she is able to raise herself to a sitting position ten or twelve times twice a day. This tones the flabby abdominal muscles.

The abdominal binder is worn snugly pinned all of this time. It should be wide enough to reach from well over the hips to the ribs. As soon as the mother gets on her feet she should have a good support for the abdomen and should at once put on a good corset and wear it all the time she is out of bed, putting it on before standing on her feet.

LATER CARE

Care of the Bowels.—Forty-eight hours after delivery the usual procedure is to give one-half to one ounce of castor oil or if the mother cannot take this, compound licorice powder or fluid extract of cascara. This is essential in order that all waste matter be swept out of the intestines. While remaining in bed and inactive, it is usually necessary each night to give a cathartic of licorice powder or a cascara pill. Even a slight amount of constipation, if allowed to persist, may cause a rise of temperature.

Care of the Bladder.—It is not uncommon to be unable to pass urine right after delivery. The patient may be allowed to go twelve hours but after this every effort should be made to urinate without the use of a catheter. Hot cloths laid over the lower part of the abdomen; gentle pressure over the bladder, either with the hand or by pinning the binder tighter; the sound of running water are some of the measures used. If these do not succeed it is necessary to use the catheter. The hands of the nurse or attendant, or physician must be perfectly clean, the glass catheter sterilized by boiling, and the region around the meatus cleansed with boric acid solution before attempting to insert the catheter. This is only done

when the other measures fail as there is danger of infecting the bladder and producing a chronic intractable inflammation of that organ, known as cystitis. After the third or fourth day, if there is still difficulty in urinating, the mother can be carefully raised in bed to an upright position on the bed pan. If this makes her faint or dizzy it must be discontinued. If she will accustom herself to the use of the bed-pan for urinating during pregnancy just before the time of confinement, she will rarely have this trouble afterward.

Care of the Breasts.—As soon as the mother has been made comfortable, usually by the latter part of the first or early on the second day, the baby is put to the breast. It is better to begin this early, even though there is no milk for the first two or three days, because it establishes the habit of nursing in the baby and is one of the greatest aids in stimulating the uterus to contract and the pelvic organs to return to normal. The act of nursing also greatly stimulates the secretion of milk.

If you follow the instructions given for the care of the breasts during the later months of pregnancy, daily sponging the nipples with the saturated solution of boric acid and alcohol, they will usually give you little trouble afterward. Before each nursing the nipples should be gently sponged off with the saturated solu-

tion of boric acid on a piece of sterile cotton or gauze. It is not now necessary to use the alcohol which was employed before to harden the nipples and to prevent cracking. If any cracks or fissures appear during nursing, making the nipples painful, paint them with compound tincture of benzoin on a camel's hair brush which has been sterilized by boiling. Each time before nursing sponge off the benzoin with warm boric acid solution. This is important because an infection can readily gain entrance to the breast through cracks and fissures. If a tender or painful spot appears on the breast and you have temperature, do not allow the baby to nurse from that breast and notify your physician at once. It means that an infection has gotten in and that there is danger of abscess. This, with inflammation, caking, and other conditions, is discussed in the volume, *The Proper Feeding of Infants* and in the chapter, *Making Maternal Nursing Successful*.

When the milk comes into the breasts they sometimes fill very rapidly and become greatly distended and painful. The amount of milk drawn off by the baby may not be sufficient to relieve this. A good plan is to have the attendant, with perfectly clean hands, massage the breasts, then take a warm cloth, preferably flannel, which has been sterilized in the oven, and place this over one breast at a time, gently

pressing the milk into the flannel. Some of the milk could be drawn off by the breast-pump but this is stimulating and only promotes secretion, so that the use of the hot flannel is better. After the breasts have been massaged the binder must be pinned on snugly because the uniform pressure tends to prevent distention. Until the tension is relieved take very little liquid. A good cathartic of Epsom salts is very beneficial.

If the baby is weaned immediately it is necessary to prevent the breasts from being distended with milk by applying belladonna ointment over the entire area of both breasts and pinning the binder on tightly. Abstain from all liquids, taking only occasional sips of water to relieve thirst. Use a dosage of Epsom salts for three or four days in succession to bring about several watery stools daily. Put the hot flannel cloths over the breasts if they become too painful and gently massage the milk into the flannel to give temporary relief. Do not use the breast-pump unless the tension is too great to bear.

The Diet.—The proper diet after confinement is of vast importance. It is a mistake to keep the mother on liquid or semi-liquid food for ten days or two weeks. This is one cause for failure of the milk in the early weeks of nursing. For the first day the diet should be milk and broth; by the second day, a soft egg, toast

and cereal can be safely added; by the third day, providing everything is going well and there has been a thoroughly good movement of the bowels, let her appetite be the guide in allowing a liberal diet of meats, soups, fruits, cereals, and vegetables. Use meat no oftener than once a day. There is no reason why the nursing mother should not choose freely from her regular list of foods, avoiding only what previously disagreed with her and omitting pork, veal, corned beef, cabbage, turnips, cucumbers, corn, navy beans, vinegar, strawberries and any acid fruit the eating of which is followed by an attack of colic in the baby. Tea causes constipation. Avoid it except when it is very weak. Coffee causes constipation and sleeplessness. Take only one cup in the morning and that not strong. Don't try to increase the milk by eating quantities of rich food. The danger is in an upset digestion which results in inability to take properly even a normal amount of food. A liberal quantity of milk and of well-cooked cereals, especially oatmeal eaten with rich cream, also cocoa and plenty of butter, help increase the quantity and quality of the milk. Nuts, except peanuts, have been found valuable. They can be taken by the woman not accustomed to them if only a very few are eaten to begin with and if they are thoroughly chewed, gradually increasing the number as she

becomes used to this new food. Nuts have been tried out most successfully as a means of improving the quantity and quality of the milk.

The Visits of the Physician.—The mother who has the advantage of hospital care is usually seen twice a day by the attending physician. If confined at home, she should be visited once a day for the first eight or ten days. At each call the physician will give attention to the following details:

1. The pulse and temperature.
2. Condition of the uterus, and the after-pains.
3. The quantity and odor of the lochia.
4. Condition of the external genitals, especially if stitches were taken.
5. The bowels and bladder.
6. Secretion and condition of the breasts.
7. The mother's diet.
8. The baby.

Later Examination.—Under normal conditions the uterus assumes its natural size and position by the sixth week. Your physician will then call upon you and determine by local examination whether the uterus has correctly returned to its proper place and proportions. There are times when it becomes displaced downward and backward, and in such cases your physician will give directions and start treatment to correct this before it becomes a chronic condition.

If he finds a displacement of any serious consequence he will usually insert a pessary which will hold the uterus forward. This is usually worn for six or eight weeks or even longer, and at the start it often permanently corrects such a displacement.

The physician will give instructions for taking the "knee-chest" position twice a day. This is done by kneeling on the bed with your shoulders resting forward on the pillow and your arms folded beneath you or across the chest. It is done for fifteen or twenty minutes, morning and night. This helps to throw the uterus forward in proper place. A correct standing and walking poise will also greatly help. This is acquired by holding the chest high. When the chest is held high the shoulders fall into position and the spine and pelvic organs are brought into true line.

Return of Menstruation.—The time when menstruation returns is extremely variable. In most instances it is sometime between the fourth and eighth months, although it may be as early as the second or third month and while the mother is nursing her baby. If the baby is nursed for ten or eleven months, menstruation may be delayed a year, or even longer, and in prolonged nursing it is sometimes difficult to re-establish it. Your physician may have to resort to the use of a tonic before the uterus

again takes on this function. Prolonged nursing is never to be advised. Both the mother's health and the child's are unfavorably affected by it.

CHAPTER XIII

THE BABY'S FIRST DAYS

As soon as the baby is born and the cord has been tied, the physician or nurse will immediately dip a sponge of sterile cotton in the warm boric acid solution and gently sponge the baby's eyelids, from the nose outward. While the baby's head is turned slightly to the left, clean the left eye and while turned to the right side clean the right eye. The physician will then gently separate the eyelids and use a one per cent solution of silver nitrate, placing one or two drops into each eye with the sterile eye-dropper. In fifteen or twenty seconds he will gently open the eyelids again and with sterile cotton soaked in warm boric acid solution, thoroughly flush out each eye carefully wiping all particles from the eye-lashes.

This procedure should never be omitted. It makes your baby's eyes safe from any infection that may have gotten into them during birth. Silver nitrate, while stronger than the other preparations used for this purpose, is safer and always dependable, in fact, there is a law in some of our states compelling its use.

The eyes may be slightly irritated and reddened for two or three days after its use but this promptly passes away. No mother should consider her baby safe from a possibility of infection, regardless of her state of health, as any baby passing through the birth canal of any mother is liable to get something in his eyes that may start an infection unless the precaution is taken of using silver nitrate at once after birth.

The baby should then be wrapped in a warm covering preferably flannel and laid out of harm's way, where there is good breathing space, and left while the mother is being made comfortable. The doctor, nurse or attendant will observe the baby every few minutes to make sure that he is breathing properly and that the navel is tied sufficiently snug that there is no oozing of blood.

As long as the baby is comfortable there is no need of hurrying with the bath, which can be delayed six or eight hours if necessary.

As soon as the mother's needs have all been attended to the baby's bath can be prepared. Place within easy reach two basins of water at a temperature of 98° to 100° F., one for washing and one for rinsing. Keep the baby wrapped in a flannel blanket or the flannel apron of the one giving the bath.

On the baby's body there is a fine, downlike

substance which we call the vernix caseosa. This must be removed before the bath by freely anointing the body with sweet oil and then gently sponging it off with a soft cloth dipped in warm water. Keep the body covered with the flannel, bathing only a small part at a time. The bath should be given in a warm room, close to the stove, register or fire. Bathe the head and face first. After the first day gently separate the lids and sponge off the eyelids and lashes with water that has been boiled. With a piece of cotton wrapped around the finger flush out the mouth. The ears then are gently cleansed taking care to poke nothing into them.

Next bathe the arms and arm-pits one at a time, then the chest and abdomen. Then turn the baby over on his stomach and wash his back and legs, one leg at a time. Be sure to gently wash out all creases, and give special care to the genitals, carefully retracting the foreskin and cleansing beneath it. No soap need be used for this first bath and after the baby has been thoroughly and gently sponged he is quickly dried with a soft towel, not by rubbing but by softly patting the skin.

At the second and subsequent bathings a little pure mild soap may be used and the body thoroughly rinsed off with a second basin of water. Never let the soapsuds dry on the skin. This is the way the bath should be given daily

until the cord has dropped off. The tub bath can then be started as described in a following chapter on *The Baby's Hygiene*.

The cord should be dressed every day by putting on a fresh piece of sterile gauze four inches square with a hole cut in the center for the stump of the cord to come through. Until the cord drops off it must be kept scrupulously dry. It must not be allowed to get wet during the bath or washed in any way, unless otherwise especially directed by your doctor. After the cord is pulled through the piece of sterile gauze, boric acid powder or dermatol should be dusted on freely. Over this should then be laid three or four thicknesses of sterile gauze about the size of the first piece. The baby's band will hold the dressing in place. Continue to use the dry powder until the navel has entirely healed.

The cord usually comes off on the fifth or sixth day, sometimes a little later, and the navel is generally entirely healed by the tenth to fifteenth day. Be sure the hands are scrupulously clean when dressing the navel. Unusual conditions that develop in connection with the navel are taken up in detail in the following chapter.

The baby's band is to keep the cord from being pulled upon by the clothes and to furnish covering for the abdomen to prevent chilling.

This band should never be pinned too tightly because if the bowels become distended with gas there is danger of severe pressure from a tight band that often causes vomiting. The regular circular knit band with the tabs in front and back for pinning to the diaper, and with shoulder straps, can be purchased, or the band can be made of flannel, long enough to go a little more than once around or about twenty inches, and the same width as the knit band which extends from the hips well over the ribs, about six inches in width. It should be of very soft flannel cut on the bias. The flannel band is preferable until the cord has come off, although either may be worn. The band can be worn for the entire first year unless the latter months extend into the hot weather when its use can be discontinued earlier. The clothes needed are described in *The Layette*, Chapter X.

In dressing the baby put on the band, then the diaper, shirt, stockings and bootees, flannel petticoat and dress, in the order named. The skirt and dress should be drawn up over the feet and not put on over the head. When the baby is dressed, wrap it up in the blanket and put it in the crib.

Young babies require a great deal of sleep, in fact, they sleep most of the time. It is a bad plan to take the baby up every time it cries. If it is cross and fussy, see that it is dry and

that its hands and feet are warm. If they are cold put a hot water bottle in the crib. Change the position or rock him, but do not take him up. Be sure that your baby is warm and comfortable, fed regularly, kept quiet, never handled unnecessarily, and he will make little trouble.

The skin of the new born babe is of a decidedly reddish color. If the baby is suffering from a congenital heart trouble, or is cold, the skin is bluish. The baby is very delicate and easily chilled. In a week's time the red color begins to fade, the skin often taking on a yellowish tint, which varies considerably as described in a following chapter. During the first week the down, on the skin at birth, begins to fall off, and the superficial layer of skin sheds in fine scales. By the end of the second week all discoloration of the skin has disappeared, and the natural pinkish tint takes its place with the palms, soles and cheeks a deeper red.

The new born baby weighs from five to ten pounds, the average weight being seven to seven and a half. The length varies from 18 to 22 inches, the average being $19\frac{1}{2}$ to $20\frac{1}{2}$ inches.

The bowels move once or twice during the first day. The passage for the first three or four days is a greenish-black odorless stool. The color changes to canary-yellow when nursing is established. This often contains tiny

curds of undigested milk. Especially is this true if the baby gets more milk than can be digested. The movements are from two to four a day for the first six weeks and may have a slight greenish tinge, which is of no significance, and which is noticeable a short time after the movement has occurred.

The urine of the young baby is almost like water, odorless and does not stain the diaper. Although no urine may pass until the second day, it is usually passed before the first 24 hours has expired. If it goes any longer it must be called to your physician's attention. Urine is passed from five to ten times a day for the first few months. Its frequency is variable; it may be every hour and then the baby may go several hours and be perfectly healthy.

During sleep the young baby breathes regularly but during waking hours the breathing will be irregular. This is more pronounced during the first year. He may hold his breath for several seconds without any apparent effort or injury. He may take several rapid breaths followed by several long ones. The average breaths will be twenty-five to thirty a minute for the first year. The young baby's breathing is mostly abdominal, from the diaphragm rather than the chest. You can determine the rapidity by watching the abdomen.

The pulse of the new baby is extremely irregular, even when he is asleep and perfectly normal. Any slight excitement, such as crying or nursing, will greatly increase the heart beats. An increase of twenty to twenty-five or even more, per minute, need not cause any alarm the first two or three years, and during the first year it may vary from 120 to 140 beats per minute. The general average is 125 to 130.

The baby's temperature is usually about $99\frac{1}{2}$ to 100° after birth and settles down after the first week or ten days to a normal infant temperature of $98\frac{1}{2}^{\circ}$ to 99° F. Very slight disturbances will cause a sudden rise, such as crying or hard struggling of any kind, taking too much food and overloading the stomach, or being handled too much. The temperature will vary greatly during the day; there may be a difference of two degrees in twenty-four hours. This should not cause alarm. If the temperature sinks as low as 97° or 96° or rises to 100° or over, persisting for twenty-four hours, the physician should be notified and a search made for some cause.

Every mother should have a clinical thermometer and learn how to use it. It need not be used every day, but whenever the baby seems to be ailing his temperature should be taken. The temperature of the baby should be taken in the armpit or by the rectum. It is not safe to try to

take it by the mouth in a child younger than five or six years, because of the danger of biting the thermometer. In taking the temperature by the rectum, the point is well oiled, and it is easier if the baby is laid on his side. It need not be inserted further than an inch or so, carefully held in the hand and withdrawn in three minutes. It is then washed in soap and cold water, disinfected with boric acid solution, then shaken down ready for use.

Always remember that a little fever in the baby without any other disturbance is not of much consequence and should not disturb the mother. It may be only a slight indigestion. But if the baby is vomiting and has diarrhea or looks pale, sick and prostrated, the presence of fever must be heeded.

After the mother has had several hours rest following delivery, the baby must be put to the breast. The act of nursing is important. It greatly helps the contraction of the uterus, it stimulates the breasts to secrete milk. The baby first obtains the substance known as colostrum, which is supposed to have a very helpful effect on the digestion.

By the second or third day the breasts usually begin to secrete milk. The child does not need any extra nourishment up to this time except that obtained in the colostrum, but he should have warm water, which has been boiled and into which

has been put a tiny pinch of sugar. This is given in a nursing bottle every two hours. Do not begin giving modified cow's milk right away; await until the third day to see if the milk is established before you start artificial feeding.

The child must not be put to the breast every time it cries but at regular intervals, as follows:

First four weeks.....7, 9, 11 A. M. 1, 3, 5, 7, 9, 12 P. M. 4 A. M.
Second month...7, 9:30, 12 A. M. 2:30, 5, 7:30, 10 P. M. 3 A. M.
Third to Fifth months.....7, 10 A. M. 1, 4, 7, 10 P. M. 3 A. M.
Fourth or fifth months to one year..7, 10 A. M. 1, 4, 7, 10 P. M.

Note: Gradually lengthen the intervals, when you change from the two-hour to the two-and-one-half-hour schedule, taking 3 or 4 days to change.

Hold the baby in the proper position when nursing. Be slightly propped up in bed at first. Rest on your side with the infant's head in the bend of your right arm to nurse from the right breast and in the left arm for the left breast. Later when sitting up lean slightly forward, bringing the breast and nipple into a more comfortable position for the baby to nurse without sucking air or getting his nose buried in the flesh, thus making it hard for him to breathe. Gently compressing the breast at the nipple regulates the flow of milk if it comes too freely. Nurse from one breast at one nursing, from the other at the next and so on. Most babies empty one breast at a nursing. Don't give both unless the supply is scanty. Emptying the breasts com-



THE CORRECT NURSING POSITION

Courtesy of The Maternity Center Association, New York City.

pletely stimulates the secretion of milk and gives the baby a well-balanced nursing, as the last milk in the breast contains more fat than the first.

By strictly observing the regular nursing periods your breasts secrete milk better. Your baby's stomach has only a limited capacity and takes just so long each time to digest the milk and needs a certain rest afterward. Digestion together with the whole process of assimilation of the food with the elimination of the waste through the bowels is likewise kept in proper order. Irregular nursing throws this whole system out of order and results in indigestion, colic, vomiting, diarrhea and constipation. Nurse your baby by the clock, wake it to nurse and never permit your other duties or pleasures to interfere. Sit in a comfortable chair in a quiet room by yourself. Relax, think about pleasant things and give your whole, undivided attention to the baby at each nursing. This is for its good health, and is one of the secrets of successful nursing.

The baby should take fifteen to twenty minutes to nurse. If it is a rapid nurser or your milk flows freely, he may get too much in this time. You must weigh him to find out, for if it is overfed it results in serious indigestion. Nurse and then weigh it. Nurse another minute, and weigh again. By this method you find out just how many minutes it takes to get the right amount of milk for the infant's weight. Refer to the

table that follows for the amount the average healthy baby requires at various ages. If your supply seems scanty or the milk is poor you must also weigh him to find out if he is getting too little milk. Use your scales faithfully, weighing the baby each week and keep a record of these weights. They, with the baby's general appearance, are your best guide about his good progress.

The delicate baby with limited powers of digestion, and who does not nurse as vigorously as the strong baby, may have to be kept longer on the two-hour schedule. The weak or lazy baby may fall asleep while nursing and have to be kept awake, or may need longer than fifteen or twenty minutes, taking little rests.

The first month the baby takes one-sixth to one-fifth of his body weight in milk every twenty-four hours. For example, the baby weighing seven and one-half pounds or 120 ounces at birth, has gained by the fourth week ten ounces, or a total weight of 130 ounces, which is between five and six times the amount of food he should take every twenty-four hours. After that up to the sixth month, the baby takes one-sixth to one-seventh of his body weight in food and after that about one-eighth. From the table you will see the average normal baby's gain in weight. If your baby is not getting enough food the first sign is failure to gain in weight; then there will

be restlessness, crying before feeding time and at the breast and remaining longer than usual. The baby should not take more milk at one nursing and less at another, sometimes refusing to finish. He should be taken away when he has had his schedule amount and not allowed to overload his stomach, thereby bringing on colic and a long train of ills from indigestion. These are all explained in detail in the volume, *The Proper Feeding of Infants*.

If the mother's milk is poor in quantity and quality she should build it up by careful attention to her diet and hygiene, drinking a glass of milk between meals and at bedtime, eating more wholesome foods, resting if she is overworking, and by taking more exercise outdoors if she is not exercising enough.

Some mothers are able to nurse their babies

FEEDING TABLE AND WEIGHT INCREASE FOR THE
AVERAGE, NORMAL BREAST-FED BABY

Age	Amount at each feeding, ounces	Number of feedings in 24 hours	Total amount in 24 hours, ounces	Increase in weight, ounces
First 5 days.....	1	10	10	
6th to 14th day.....	1¾	10	17½	2½
3rd week	2	10	20	7½
4th week	3	8	24	10
5th to 8th week.....	3¼	8	26	32
9th to 12th week.....	3½	8	28	24
13th to 16th week.....	4¼	7	29¾	24
17th to 20th week.....	5	6	30	20
6th month to 1 year.....	6 to 8	6	36 to 48	15 to 17 each month

only two months, some not that long, but the majority nurse six or seven months; nursing should not be prolonged beyond the ninth or tenth month at the latest, and the eighth is the correct month for the average mother to start weaning.

ARTIFICIAL FEEDING

If artificial feeding is necessary, the mother's problem is one which requires the most careful study from the beginning. This subject is discussed most thoroughly and every detail of the care and feeding of the baby is painstakingly explained in the volume, *The Proper Feeding of Infants*. The following table will give the mother some idea of the first formulas to be prepared, but before she proceeds at this critical time in the young baby's life, when his digestion must be gradually made to adapt itself to an entirely foreign food, she should carefully study the guiding rules for artificial feeding that are laid down in the first book.

One word of caution to the mother who cannot nurse her baby. The disastrous results that follow in the wake of artificial feeding are due, nine times out of ten, to the fact that too strong a formula is used. Cow's milk is so essentially different from mother's milk that it can only be successfully fed to the young baby in small weak amounts with an increase so gradual that

the digestion is able to accustom itself to the strange food. Your baby will not gain on the weak formulas, but if he appears to be digesting the food, showing even a slight increase in weight after the tenth day, you can be well satisfied. If you follow this schedule you will be able gradually to increase the strength of the food by the end of the month. But if you start, as so many mothers do, with a stronger formula the baby's digestion will unfailingly be thrown out of balance, and then in an effort to find something that will be taken by the enfeebled digestion in the change from one food to another your baby's life will be endangered. On the other hand this can be easily avoided if, in the beginning, you see to it that the greatest caution is observed in feeding these weak mixtures.

FORMULAS FOR THE FIRST DAY TO THE SECOND MONTH

FIRST AND SECOND DAYS

Sixteen ounces of plain boiled water, sweetened with one teaspoonful of milk sugar (not cane or table sugar) for the twenty-four-hour feeding. Give one ounce every three hours from a nursing bottle. (Do not use more than one teaspoonful of sugar for the entire sixteen ounces.)

Note: If your baby is quite frail and unable to take the full ounce, you may have to give less at a feeding and feed every two hours for the first month. In this event

divide the feeding accurately so that the baby gets the right amount, no more and no less.

THIRD AND FOURTH DAYS

Ten ounces of water, six ounces of skimmed milk, one teaspoonful of milk sugar. Boiled for three minutes, if over the direct fire, and if in the double boiler, have the water in the outervessel boil eight minutes. This sixteen ounces is the feeding for twenty-four hours. (Add enough boiled water to make up for what evaporates in

boiling.) Feed one ounce every three hours from the nursing bottle. Discard what is left over. Make up the twenty-four-hour mixture in this proportion. Do not try to make up the exact amount for each feeding separately or you will fail to get the proportions correct. The baby gets a total of seven ounces in the twenty-four hours.

FIFTH AND SIXTH DAYS

Eight ounces of skimmed milk, and eight ounces of water, with two teaspoonfuls of milk sugar. Boil, as directed for previous days. Feed one and one-half ounces every three hours in seven feedings. This is a total of ten and one-half ounces in the twenty-four hours. Discard what is not used. If you are feeding the frail baby every two hours, you will use the ten and one-half ounces in ten feedings, giving a trifle over an ounce at each feeding.

Note: Remember you are using skimmed milk, milk from which all the cream has been removed. You do not start using whole milk until the seventh day. Whole milk contains cream or fat to which the digestion must be accustomed very gradually.

SEVENTH, EIGHTH AND NINTH DAYS

Four ounces of skimmed milk and four ounces of whole milk, with eight ounces of water and two teaspoonfuls of milk sugar. Boil, as directed. Feed one and one-half ounces every three

hours in seven feedings, or a total of ten and one-half ounces in the twenty-four hours. Discard what is not used.

Note: This is the first day you start the use of whole milk. Whole milk is taken from the quart bottle after it is well shaken to mix up the cream thoroughly. Do not take from the top of the bottle without shaking as this gives too much cream and would upset the digestion. The four ounces of whole milk contain enough cream to begin with. Be very careful about this.

TENTH, ELEVENTH AND TWELFTH DAYS

Three ounces of skimmed milk, and five ounces of whole milk with eight ounces of water and two and one-half teaspoonfuls of milk sugar. Boil, as directed. Feed two ounces every three hours in seven feedings or a total of fourteen ounces in twenty-four hours. Discard what remains.

Note: If any signs of indigestion arise, go back to the previous formula of more skimmed milk and less whole milk and sugar. Indigestion shows that the stomach is not yet able to digest the fat in the whole milk. Some babies cannot easily digest sugar and have to be fed very cautiously.

THIRTEENTH AND FOURTEENTH DAYS

Three ounces of skimmed milk, and seven ounces of

whole milk with eight ounces of water and three teaspoonfuls of milk sugar. Boil, as directed. Feed two ounces every three hours in seven feedings or a total of fourteen ounces. Discard what remains. If any signs of indigestion, return at once to the previous formula of less whole milk and sugar.

Note: Remember, if the stronger formula upsets the stomach and you continue it, it makes matters worse.

THIRD WEEK

Ten ounces of whole milk,
Give one ounce of warm boiled water between feedings.

eight ounces of water and four teaspoonfuls of milk sugar. Boil, as directed. Feed two and one-half ounces every three hours in seven feedings or a total of seventeen and one-half ounces. Discard what remains.

FOURTH WEEK

Eleven ounces of whole milk and ten ounces of water with four teaspoonfuls of milk sugar. Boil, as directed. Feed three ounces every three hours in seven feedings or a total of twenty-one ounces.

Warm the feeding; cold milk and water cause colic. Hold the bottle so that the baby gets the milk, not air. Air sucked in causes colic. If the boiled cow's milk constipates, give fifteen drops of milk of magnesia in a little warm water, once a day. Sterilize bottles and nipples thoroughly. The slightest dirt on bottle or nipple can cause colic and indigestion. Get pasteurized or certified milk. (Pasteurized milk need not be boiled.) Keep on ice or in cold place. When mixture is made for the twenty-four hours divide in the nursing bottles, stopper carefully and keep on ice. Never use cereal water in any form until the baby is two and one-half to three months old as he cannot digest starch before that.

Instructions for feeding the sick baby are given in the volume, *The Proper Feeding of Infants*.

CHAPTER XIV

ACCIDENTS TO THE NEW BORN

It is indeed surprising to find with what frequency emergencies, which we commonly speak of as accidents to the newborn, occur. It is fortunate indeed that most of these so-called accidents properly cared for prove to be trivial in their consequences. The danger comes when such unusual conditions are allowed to go untreated until they have developed into some serious, lasting and intractable complication.

JAUNDICE

One of the most common problems that cause mothers great anxiety is the condition known as icterus, or jaundice. This may develop in the first few days of life and is extremely variable, amounting at times to a very slight discoloration of the skin and again appearing as a deep yellow hue. Fortunately, in most instances it is of little consequence and need cause no alarm. Within four or five days, or ten at the most, the discoloration will disappear entirely. One dose of four or five drops of castor oil, after the fourth or fifth day, if the jaundice still persists, will

hasten its disappearance. It is important that a jaundiced baby receive warm boiled water from the nursing bottle from the very first day. An ounce, sweetened with a pinch of sugar, will be readily taken every four hours. This water, given between nursings, helps materially in flushing from the intestines the substance we term meconium, and at the same time to increase the normal activity of the kidneys. The cleansing of the intestines of this substance, some of which has been swallowed during labor, facilitates the return of the skin to the normal pink color. Should more strenuous treatment be found necessary it must always be carried out under the direct supervision of your physician. However, I am of the opinion that many times medicines which are too powerful are administered to the newborn babe in an attempt to clear up the yellow color of the skin, and the results are a serious disturbance of digestion. The simple suggestion that I have given you here will almost always prove efficacious and can do no harm.

Jaundice may at times be more serious and persistent. It will then be found to be the result of a more deep-seated cause, and calls for the studied attention of your physician. I again want to impress upon your minds the importance of not worrying over this situation. Moreover, anxiety of any kind only disturbs your milk.

Your mind must be kept free from all care and worry if you hope to be successful in nursing your baby.

CARE OF THE NAVEL

When the mother does not have the advantage of hospital care the dressing and attention of the navel of her newborn babe is often left in her hands. Under normal conditions, if the navel is kept perfectly dry and clean, the small stump or cord falls off on the fifth or sixth day leaving a clean healing surface, which, by the twelfth or fifteenth day, has closed over entirely.

In dressing the navel, unless strict aseptic precautions are taken, some infection may gain entrance around the stump. This may even spread to the surrounding tissues over the abdomen and set up a more or less violent inflammation. Dangerous and even fatal infections can gain entrance to the blood in this manner. It is therefore of the utmost importance that the most scrupulous cleanliness be observed in dressing the navel until the wound has entirely healed.

The gauze and cotton dressings which are used in the home must be sterilized with as rigid care as every article which is used at the time of confinement. In addition to sterilizing the dressings the hands that tend the navel must be thoroughly scrubbed with tincture of green soap and hot water and then carefully rinsed with sterile water

to which one-half teaspoonful of lysol to each quart has been added. The navel must be kept perfectly dry and for this purpose antiseptic powder, such as powdered boracic acid or dermatol should be dusted freely over the stump.

After the stump of the umbilical cord has dropped off, the wound must still be kept scrupulously dry and clean. It can be cleansed gently with peroxide, or a boric acid solution, one level teaspoonful to a pint of water, kept at the boiling point for five minutes, and sterile cotton, then covered with a thick layer of boric acid powder. If this treatment is carefully carried out there will be no difficulty in securing a perfect healing.

Should it happen, however, that the navel becomes infected and ulceration forms with discharge of pus, do not hesitate a moment in calling your physician's attention to it. This infection may even extend beyond the naval, burrowing into the surrounding tissues. The skin adjacent to the navel will then become red and exceedingly tender.

The best treatment for you to follow in this case, until you can secure the aid of your physician, is to make a boric acid solution, such as I have just directed. Fold a piece of sterile gauze into six thicknesses, large enough to cover the infected area, place it in the solution, wring it out with thoroughly clean hands and place it on the affected part. This can be used a little

warmer than the baby's body temperature. Leave this on for fifteen or twenty minutes, then again dip it in the solution and apply as before. Over this place a soft folded towel which will serve to keep the dressing moist and warm. Continue this treatment for one hour then allow an hour's rest leaving a piece of dry sterile gauze on the abdomen. This treatment persisted in with rigid care should promptly check the infection.

The baby's bowels must be kept open; if necessary an enema should be used or a few drops of castor oil given by the mouth. The infection makes the muscles of the abdomen so tender that if constipation exists it causes a great deal of pain. It is also most important that all straining be avoided. As soon as all the redness and inflammation have disappeared the use of the wet dressings can be discontinued and the open umbilical surface kept dry by the use of boric powder.

HERNIA

One of the most distressing accidents which can occur during the first few weeks or months of the baby's life is the development of hernia or rupture. Let me first explain just what hernia is. There are two strong muscles which lie side by side and extend from the upper part of the abdomen to the lower. If these muscles spread too far apart as a result of severe vomiting or

straining from constipation, or violent crying, or if these muscles are weak as is often the case in the premature and feeble infant, a loop of bowel can protrude forward between them, usually at the weakest point which is the umbilicus. This protrusion is known as a hernia. When the baby cries or strains this bulging hernia becomes more prominent. In fact a hernia does not always make its appearance on the surface until the baby has had a severe crying spell, or straining from constipation, or the abdomen is greatly distended from gas. This loop of bowel with its covering pushes forward and lies just underneath the skin. With very little pressure it can be pushed back into position unless the baby is crying hard.

This type of rupture is known as umbilical hernia. As soon as it makes an appearance it is important that it be pushed back between the muscles and the muscles drawn together and held in place. The reason for doing this, you can readily understand. If the proper treatment is started and carefully persisted in a very large percentage of hernia appearing in young infants can be permanently cured without resorting to operations.

The method commonly practiced of pinning a band tightly around the abdomen is not adequate. If the band is pinned tightly enough to keep the hernia reduced it will be so snug as to cause dis-

comfort and will result in vomiting because of the severe pressure on the intestines. The best thing to do is to take a smooth, flat, wooden or steel button about the size of a half dollar, covered smoothly with clean gauze or cotton cloth, and place it directly over the hernia. Fasten this in position with adhesive plaster. Take two strips of adhesive plaster, four or five inches long. Fasten one strip to the baby's skin firmly on one side of the button, draw it tightly to the button, fasten on the button along the lower side and draw firmly over, fastening the other end to the baby's skin on the other side. Do the same with the other strip of plaster, fastening it about an inch higher up on the skin and along the upper side of the button. This holds the button in place directly over the hernia and keeps up a steady pressure. Over this can be pinned the abdominal band, snugly, but not so tight that it causes discomfort. This treatment will not only keep the hernia successfully reduced but result in time in a permanent cure. Occasionally there will be a hernia which resists this form of treatment and if it persists after the first year your physician must decide whether an operation is necessary.

There is another form of hernia which appears in the groin in boy babies and which is known as inguinal hernia. This is a much rarer type in the young infant, but when it does make its ap-

pearance, demands prompt and skilled attention. Because of the fact that so much of the bowel may push its way out through the muscles, reduction may be impossible, and what is known as strangulation of the bowel results. This is so serious a complication that it calls for an immediate operation to save the child's life.

If a swelling makes its appearance in the groin of your baby do not delay in calling your physician to attend it. He will provide you with a very simple little rubber truss which will keep the hernia reduced, and if you will see to it that the truss is kept properly adjusted, the hernia will in most instances, disappear permanently, although this treatment may have to be continued for several months.

HEMORRHAGE

One of the strangest and most unaccountable accidents to the newborn baby is a mysterious and persistent bleeding. It makes its appearance without warning; usually as an unceasing oozing. It comes from the lining membrane of the nose, mouth, intestines or from around the navel.

The little body cannot long endure this steady loss of blood. Your physician must put forth every effort to check it without delay. Just what is responsible for this amazing phenomenon our greatest authorities have not yet agreed upon. Many are convinced that this hemorrhage condi-

tion is the result of some undiscovered infection which has found its way into the baby's blood.

To support this belief let me tell you of a baby whose mother developed, when the child was but two weeks old, the acute inflammation of the throat known as quinsy. In quinsy, as you know, pus forms around the tonsil and makes its escape either by spontaneously rupturing into the mouth or by being liberated by the surgeon's knife. This mother continued to nurse her baby and some of the infection or pus must have passed into her blood and found its way into her milk. In a very few days after this, blood began oozing from the baby's nose, mouth, and intestines.

The one thing that might have saved this baby's life and which is the most successful treatment that modern science knows, would have been the direct transfusion of a certain amount of the mother's blood into the baby's veins. This could not be done for the very obvious reason that the mother was carrying in her blood the infection which was undoubtedly responsible for the child's hemorrhage. A transfusion of the father's blood in this instance would have then been the proper treatment, providing of course his blood was in a healthy condition. Unfortunately this treatment was not carried out until too late. The baby had become weakened from the long, continued loss of blood.

The direct transfusion of blood offers, by far,

the greatest chance of saving these babies' lives, and when the mother is well and in an apparently normal condition she should always be the donor. If this accident should happen to your baby go at once to a well equipped hospital where a transfusion can be speedily and scientifically made.

Blood serum, which your physician can procure ready for immediate use on short notice has been injected subcutaneously in the first stages of hemorrhage, and has at times been successful in arresting it entirely. The best available treatment to use is always a matter for your physician's judgment.

THE BABY'S EYES

Right here I want to repeat again one of the things I specially mentioned in the chapter, *The Baby's First Days*, and to drive home with lasting emphasis the paramount consequence of the instructions which follow.

Failure to give proper care to the baby's eyes at the time of birth is responsible for thousands of cases of permanent blindness.

The eyes can so easily become infected while the baby is passing through the birth canal, but if the simplest precautions are taken immediately after birth there will be no danger of the development of any serious inflammation of the eye.

Many mothers have been inclined to feel affronted at the suggestion of the possibility of

infection in their babies' eyes, erroneously believing that only one kind of infection could be responsible for any serious trouble. There are many different kinds of infection which can produce dangerous inflammation in a baby's eyes, and they can and do exist in the birth canal of *any* mother.

Fortunately many states have passed laws which make it absolutely compulsory for physicians and mid-wives to carry out this proper treatment and failing to do so become the object of criminal negligence.

This is what your physician or nurse must do directly after the birth of the baby: With perfectly clean hands dip sterile cotton in a warm saturated solution of boric acid and gently separate the baby's lids, squeezing the boric acid solution from the cotton into the eyes. Turn the head slightly so that the solution runs from the nasal side of the eye outward. Follow this by dropping into each eye a one per cent solution of silver nitrate. Put one or two drops in each eye. In fifteen to twenty seconds gently wash out the silver nitrate with the boric acid solution or a normal salt solution using the sterile eye dropper for this purpose. Only when this treatment has been faithfully carried out have your baby's eyes been made safe.

Of course accidents will occur after the baby's birth and some infection may be introduced into

the eyes. At the first sign of any trouble, should the eyes become reddened and inflamed, get in touch with your physician at once. Should he live at a great distance let him provide you in advance with a ten or fifteen per cent solution of argyrol, which you yourself can safely use in accordance with his instructions, putting two or three drops in each eye three times a day should any inflammation make its appearance.

CHAPTER XV

THE BABY'S HYGIENE

The great institutions in our large cities are crowded with waifs who at birth promise little, but who, under proper management, develop into healthy children, vigorous in mind and body. The child's future health, happiness and usefulness are dependent upon the foundation you lay for him during the first years. Competition grows more intense, the physical fitness of men and women for any position is being more carefully scrutinized each year, and every child has a right to demand from its parents such care and attention that when he is ready to enter the "big business" conflict of life, he may do so, not as a physical weakling who soon falls behind in the great onward sweep of progress, but as one with the unlimited resources of a sound body and mind secured for his mature years by the foundation laid in the nutrition and hygiene of his babyhood.

Fresh Air.—Food and hygiene are as your right and left hands in caring for your baby. These are the great growth provisions that every mother is given to measure out to her child. In the baby's hygiene her first attention must be to

fresh air. With the best of food there will be no results in health and development without the aid of the oxygen of fresh air. With the best food, baby's cheeks will not grow rosy, his appetite keen or his digestion strong, if he must live on the devitalized air from which others have taken the life-giving oxygen. He must have his own air as he has his own food. Too often does the physician enter the unventilated room to find a little helpless patient suffering from nothing in the world but the breathing of second-hand air, out of which the adults and older children have a chance to escape, but in which the baby is imprisoned hour after hour.

Bathing the Baby.—The temperature of the room where the baby is bathed should be 80° to 85°. There should be no draughts. The water should be 100°. The bath should be given daily, preferably in the morning between nine and ten and before feeding. The bath should be given quickly and the body carefully dried by patting with a soft towel. The skin should not be rubbed and only the purest soap used and that sparingly. A very pure talcum powder should be dusted in all creases to aid in complete drying. The head should be washed first and no water or soap gotten into the eyes and ears. By the sixth month, the temperature of the bath water can be lowered to 95°; by the end of the year to 90°. In some infants, there is not the proper reaction after

the bath, the babies remaining pale and slightly blue about the lips and under the eyes. With these babies, the bath should be given but three times a week and the child left in the water only a few seconds. Everything should be done to make the baby enjoy his bath. In hot weather the water can be cooler. The baby should not be frightened by being lowered into the tub too quickly or in any way distressed so that the habit of crying through the bathing time is started. The bath should not overlap the feeding time so that before the mother is through dressing, the baby is crying with impatience and hunger. Have everything ready that is needed and within easy reach; acquire a sure and gentle hand, and remember that "haste makes waste." Teach your baby to love his bath and your maturing child in after years will continue to love the cleanliness of the daily bath and appreciate its benefits.

Do not bathe the baby if it has eczema or a very reddened skin. This should be gently cleansed with olive or sweet oil. If there is a cough or cold in the head discontinue the tub bath until it is over.

Nails.—Cut the nails carefully with round scissors before the bath, and clean away any matter that clings to them with a wet toothpick.

Hair.—The hair should be brushed with a soft baby brush. The scalp should be washed thoroughly two or three times a week with a good

lather of mild baby soap, and the hair always carefully rinsed and dried.

The Baby's Clothing.—The clothing should be warm, light in weight and soft to the skin. It should not confine the free movements of the limbs, abdomen, and chest and should have no heavy buttons or humpy places to press into the flesh. Everything should be supported from the shoulders except the band, the diaper being pinned to one of the supported garments. Diapers should be of cotton, soft and pliable. Rubber diapers make mothers careless. Because the baby cannot wet through, he is often left with the acid urine in contact with his flesh until it becomes raw and terribly painful. The feet and legs and abdomen especially should be kept warm. The night covering should be warm but not heavy and overloading. This often causes restlessness. The outdoor clothing should be all wool in winter and the baby's head protected from draughts and high winds to avert colds and danger of inflammation of the middle ear which is more common in infancy than we generally think. Much caution should be exercised in making changes in clothing that is seasonable.

If the baby's buttocks become irritated, wash the diapers in a good pure hand soap rather than a laundry soap or strong washing powder, use no bluing, rinse thoroughly, and dry in the sun or open air. Never iron or starch diapers.

The shoes must be roomy giving plenty of play for the ball and toes and made of soft pliable material. Some of the bones of the foot in the baby are undeveloped, being merely soft cartilage easily deformed by shoes which pinch.

The baby for the first year should wear at night, the band, a shirt, diaper, and a flannel or flannelette nightdress made long enough to completely cover the feet, with draw strings in the hem so that if the baby gets uncovered his feet are always protected.

Baby's Laundry.—All the baby's clothes should be laundered separately, and only a pure, superior soap used. They should not be dried in the basement but outdoors in the wind and sunlight, our greatest natural sterilizers. The clothes that go next the flesh should not be ironed but put on fresh from their sun-bath, clean-smelling and thoroughly dry. This is a real health measure.

Care of the Eyes.—Immediately after birth every infant should have instilled into each eye one or two drops of a one per cent solution of silver nitrate. In a few seconds the eyes should then be washed out with the normal salt solution. This is imperative! It will save the eyes of many children. The eyes of all babies during birth can become infected and this precaution is rapidly becoming a law in nearly every State. Mothers should see that this measure is not overlooked, for the danger of infecting the baby's eyes at

birth is always present in every mother from many different causes. During infancy, the baby's eyes should be sheltered from strong light. He should sleep in a darkened room and never be allowed to lie in his carriage or crib with the sun shining in his eyes.

Baby's Nose and Ears.—As much as possible the nose and ears should be left alone. Clean only the lower edges of the nostrils with your soft wash cloth. Prevent them from becoming dry and crusty by the use of sterile vaseline. Clean the external ear also with your wash cloth. Never poke anything into the ear canal. If there is anything the matter with the baby's ear, your physician should attend to it. A baby suffering from inflammation of the ear will act at times like one having colic and will always have fever. He will draw up his arms and legs, roll his head from side to side and cry out with sharp pain. Hundreds of such babies are dosed with peppermint and paragoric when there is no trouble with the stomach and bowels at all. Your physician always carries with him a little ear speculum and upon examining the baby's ear, if he finds it inflamed, he can instil one or two drops of a five per cent solution of phenol in glycerine, having the baby lie on the opposite side so that the solution remains in the ear and comes in contact with the ear drum. If the ear drum is inflamed it must be carefully watched from day

to day, may be several times during the day, and if it is bulging your physician will not hesitate to make an opening in the ear drum which will allow the pus to escape. This frequently saves the hearing from permanent impairment and prevents that serious complication which may occur in babies, known as "acute mastoiditis." Of course every mother realizes that this ear trouble is liable to result from carelessness in protecting the baby's head from draughts.

Care of the Mouth and Teeth.—At the time of the daily bath, the mouth should be cleansed with a sterile cotton swab wrapped about the mother's finger dipped in boiled water which has been cooled. This clean water squeezed out of the cotton flushes out the mouth. The mother should always notice the mouth carefully and at the first signs of any soreness, it should also be washed after each feeding, using a solution of bicarbonate of soda or boric acid and a swab of sterile cotton twisted about the finger. This should be done very gently. The baby's mouth can be greatly irritated by harsh or over-zealous cleansing.

If any stains appear on the teeth a little precipitated carbonate of lime dusted on the toothbrush will remove them, or, a toothpick dipped in powdered pumice stone can be used and the teeth and gums thoroughly washed so that none of the pumice remains about the gums. Be very

careful not to injure the gums with the end of the toothpick. Material must not be allowed to accumulate because this causes the teeth to become infected and the gums to recede, thereby loosening the teeth so that they come out long before their time.

As soon as the first teeth make their appearance, they should be kept clean. A piece of sterile gauze and later the first size baby tooth brush should be used. Dirty teeth decay. Decayed teeth menace the health and can cause severe infections.

The Baby's Skin.—The skin is exceedingly delicate and care should be constantly exercised to prevent excoriations, eruptions and eczema. Cleanliness is the first requisite and it must be accomplished without rubbing and with the purest soaps only. Diapers must be removed at once when they become soiled or wet. A mild, borated talcum powder should be used daily in all the folds of the skin, behind the ears, the neck, under the arms, groins, genitals and thighs, and wherever there are folds of fat. If the water irritates the skin, a tablespoonful of salt to the gallon of water will soften it. Pure cow's cream, cold cream or sterile vaseline for chafed or chapped skin, and ointment of zinc oxide for the urine burns, will relieve these conditions.

Care of the Genital Organs.—Cleanliness is all that is required in girl babies. In boys, early

care should be given to the foreskin if long or adherent. At the daily bath the foreskin must be completely retracted and cleansed. When it is so adherent that it cannot be drawn back and it is impossible to clean beneath it, circumcision is advisable. Accumulated secretion results in nervousness, bed-wetting and bad habits.

Care of the Bowels and Urination.—At six months the baby can be trained to have its bowel movements regularly, if supported on its chamber chair. This should be done at a regular hour after feeding, and a time should be established for this systematic, daily evacuation of the bowels that will not in later life interfere with the child's other duties. The importance of establishing good bowel habits cannot be overestimated. The child's health through life is directly dependent upon it. By the end of the first year, many babies can be trained to indicate their desire to empty the bladder. With a little training, the child of two and two and a half years can be quite independent of the napkin. By the age of three a normal child can go from 10 P. M. until morning without emptying the bladder.

Care of the Nervous System.—Noise, commotions, disturbance, and jouncing, tickling and amusing the baby all tend to make a nervous child. Showing off the baby with its attendant excitement and laughter is an injury that no wise parent will permit. The little brain grows more

in size in the first two years than in all the remaining years of life and for a healthy, normal development it requires a quiet, peaceful environment free from excitement of any kind.

Sleep.—A healthy baby, during the first few weeks, sleeps from twenty to twenty-two hours out of the twenty-four. Hunger, discomfort or pain are the only disturbants. For the next six months, a well baby will sleep sixteen or eighteen hours a day and will waken for only half-hour to two-hour intervals. At the age of one year, most babies will sleep twelve hours at night and three or four hours during the day, in two naps.

Train your baby from birth in good sleeping habits. Put it in its crib and let it go to sleep without rocking or attention. Never let it go to sleep with anything in its mouth and do not let it sleep at the breast. If for any reason your baby has acquired the bad habit of not going to sleep, without rocking or undue attention, start at once to break the habit. A little crying will not hurt the normal baby, and after a few nights you will find the fussing discontinued, if you will let it alone.

Train your baby to take his long sleep of five or six hours at night, and the short sleep of two to three hours during the day. Do not, however, let it sleep through or past the feeding time. Waken it promptly to establish strict regularity of feeding. If you take the child up whenever

it fusses or cries you will find the habit fastens itself almost immediately and will not only give you a great deal of trouble and loss of sleep but will prove a drawback to the baby's development.

Irregularity of feeding with its consequent disturbances of digestion is by far the occasion of more sleeplessness and restlessness than any other cause.

Exercise.—By normal crying, the baby gets its breathing exercises. By kicking its legs, tossing its arms and moving its head, its muscles are exercised. As the baby grows older it tumbles about the bed and should have the opportunity in a sufficiently warm room to develop its muscles without restraint. Carefully guarded exercises will intelligently direct the expansion of a too narrow chest, weak back, or legs. The baby should not be allowed to sit up on its spine unsupported until the ninth or tenth month, or to stand on its legs until after the first year if he is a normal, healthy baby. If your baby has any weakness, do not encourage this until you feel sure the little spine and legs are sufficiently strong to permit it, and even then it is wise to "go a little slow."

Outdoors.—By the end of the first week, if the weather is warm, the baby can go out for its airing and be kept outdoors two hours each day as long as it is dry and sunny. In the fall and spring the temperature should be above 60° F.,

and the baby at least a month old before he goes out; fifteen or twenty minutes at first, then gradually longer until it remains out two or three hours or more. Accustom the baby to the outdoor air by dressing him for its outing the first day and opening the doors and windows without actually taking it outdoors. If it is winter, this can constitute the baby's airing for several months. It needs plenty of fresh air winter and summer, but fresh air does not necessarily have to be cold air. After the fourth or fifth month, the child can go outdoors if the temperature is not below 20° or 25° F. High winds and dampness should be avoided. Sleeping outdoors with the proper precautions has proved a most beneficial practice for the babies who have come under the observance of many authorities. Delicate children should not be exposed to changes in temperature, even with the proper change in clothing that the robust baby is accustomed to, but must be very carefully guarded during the cold or damp weather. After the fourth or fifth month, weather permitting and with the proper clothing, the baby can remain outdoors the greater part of the day. It can be left to sleep quietly in his carriage or crib in a sunny sheltered place. It is not good for it to be rolled about the uneven streets in the dust and noise.

The Nursery.—Sunshine and good ventilation are indispensable for the nursery. The tempera-

ture should be 70° at first during the day and not below 65° at night. After two months 60° or even 50° at night. There should be no draughts. Ventilators should be in the windows. Clothes should not be hung to dry in the nursery, and food should not be cooked or left there. The heating apparatus should be protected, whether stove or steam pipes, so that there is never danger of the baby's coming in contact with the hot surface. This has been the cause of too many frightful burns. Gas should not be kept burning at night; it uses up the oxygen. There should be no heavy hanging or dust-collecting germ-gathering furniture or carpets. The baby should always have his own separate bed. He should never under any circumstances sleep with the adults or other children. The crib should be stationary, never with rockers. A firm, hair mattress and a down pillow should be used with cotton sheets and all-wool blankets. The nursery should be as large a room as possible so that a sufficient supply of good air is always available without draughts.

The bedding should be aired regularly each day, always in the sun, and the baby should never be put between damp or cold sheets or blankets.

Flies.—All that has been written on this subject is still not enough to impress those who attend the baby with the weight of the fact that the fly is the greatest common carrier of filth

and disease, that he goes germ-laden from the foulest hole and most putrid mass of decaying matter to your own clean baby's little drooling lip, unless you see to it that the carriage and crib and room are protected by adequate netting.

Creeping.—Never permit creeping on bare or cold or dusty floors. Let the baby have a big bed to exercise on, or a large clean blanket or rug that can be aired and kept clean.

The Baby's Bottle.—The baby's bottle and everything used in the preparation of its food and fresh water must be kept scrupulously clean by sterilizing in boiling water. The bottle should be of the approved, easily cleaned type, and there should be a sufficient supply of bottles and nipples so that the carefully sterilized bottle is always in readiness and so that there is always a fresh nipple, if the bottle accidentally falls on the floor.

Kissing.—Kissing a baby on the mouth is a most pernicious practice. The mother should not permit it.

Toys.—Toys should be selected that can be washed and none should be allowed that have colors that rub off or that have corners which can hurt or scratch the tender skin.

CHAPTER XVI

THE BABY'S GROWTH

By observing and carefully studying the usual, the average, and the normal, we are able to recognize the abnormal. You learn whether your child is too fat or too thin, too nervous or too bright, by comparing him with the average child. Information and statistics are now so available that every parent is able to study the individual child by contrasting him with the other average child or the other abnormal child. Because printed reports in the old days were not so accessible to every family, parents used to "crow" a bit over the abnormally bright child. They would term the child below normal as backward or awkward, calling it the "unlucky one" or "the ugly duckling." The parents who might have been tempted to say a generation ago, that a certain child was born under an "ill-fated star," to-day have the child examined to see if the trouble is adenoids, which if removed may change the entire appearance of the so-called "star." The "little black sheep" we now know may simply be the nervous child, and the "ugly duckling," dark and scrawny, plainly needs its tonsils out

and its teeth taken care of. The one who is "slower than molasses in winter" and who will "never get on" just wants a little mineral oil at bedtime and a different diet, while the abnormally bright child that we used to force and excite by too much showing off, we now gently restrain, keeping the precious nervous energy from being unwisely scattered. So we use these reports of the average, normal child, gathered by our greatest authorities by painstaking tests and observances, to find out in what way our own child differs, and on learning the difference to set about righting anything that may be wrong.

TABLE SHOWING AVERAGE WEIGHT AND LENGTH FOR
FIRST FOUR YEARS

	BOYS	WEIGHT	GIRLS
Birth	20.1 in.	7 lbs. 8 oz.	19.3 in.
1 month	20.7 in.	8¾ lbs.	20.2 in.
2 months	21.8 in.	10¾ lbs.	21.6 in.
3 months	22.7 in.	12¼ lbs.	22.3 in.
4 months	23.7 in.	13¾ lbs.	23.1 in.
5 months	24.1 in.	15 lbs.	23.7 in.
6 months	24.6 in.	16¼ lbs.	24.2 in.
8 months	25.8 in.	18¼ lbs.	25.3 in.
10 months	26.4 in.	19¾ lbs.	26.5 in.
1 year	27.7 in.	21½ lbs.	27.2 in.
2 years	32.0 in.	28 lbs.	31.7 in.
3 years	35.5 in.	32 lbs.	35.0 in.
4 years	37.5 in.	35 lbs.	37.0 in.

By the end of the fifth month, the birth weight is doubled; by the end of the year, trebled. The average weight of boy babies is a trifle more than that of girl babies at the end of the first year, amounting to a difference of one-half to one and

one-half pounds. For the first few months breast-fed babies usually weigh a little more than those artificially fed, but are about the same by the end of the first year.

Like plants, children seem to grow more during the warm weather. School statistics show that July and August are the greatest growing months, September to February showing the least growth. Babies born in the summer seem later to be larger than those born in the cold months, according to some authorities.

TABLE SHOWING DEVELOPMENT OF THE HEAD AND CHEST

	Circumference of Head	Circumference of Chest at Nipple-line
Birth	13.0 to 13.8	12.6 to 13.0
6 month	16.5 to 17.7	16.1 to 16.5
1 year	17.7 to 18.1	17.3 to 18.1
2 years	18.5 to 18.9	18.5 to 19.1
3 years	19.1 to 19.7	19.7 to 20.1

The chest at the time of birth should not be more than four-fifths of an inch or one inch under the circumference of the head. At one year, it should be about the same circumference and at three years, the chest development is not up to the average if it has not exceeded the circumference of the head.

General Proportions.—The young infant's legs appear short because the lower portion of his body measuring from the top of the hip bones, is about the same length as the upper portion.

In the adult, this lower portion is nearly sixty-three percent of the entire body. Approaching puberty the growth of the lower portion of the body is more rapid to a marked degree than the upper portion.

THE HEAD

The head in the newborn infant is very long, about one-fourth of the total body length, while in the adult, the head is about eleven per cent of the total length. The shape is decidedly different. The face is very much smaller in proportion than the cranium. The swellings or irregularities in the head occasioned by birth generally disappear by the tenth to the fifteenth day. As the bones of the skull are not united at the time of birth, the baby's skull may become slightly misshapen from lying too long on the back of the head.

On the top of the head at the time of birth there are located two spots which are not covered with bone. They are termed the fontanelles. The larger one is in front and does not become completely closed and covered by bone until the seventeenth or eighteenth month. This period may be a little longer, but should never exceed two years. Should the fontanelles remain unclosed for a longer period, it is a very suggestive sign that the baby is suffering from some degree of rickets. The posterior fontanelle is much smaller and is usually completely closed by the

tenth week. The explanation for these open areas is found in the fact that the brain grows much more rapidly than the bones of the skull, and these openings admit of great expansion. The skin over the fontanelles should not bulge or be much depressed.

The Scalp.—The scalp is usually sparsely covered with hair at the time of birth, occasionally a baby will have rather long, dark hair, which it retains for several months. In most babies, however, the hair falls off within a short time leaving the head quite bald. The new hair may be even as late as six months in coming. It is lighter in color and of firmer texture as a rule than the first hair. Oily scales may appear on the scalp, and unless these are removed by the use of a soft brush and oil gently massaged into the scalp, they are apt to accumulate in great masses covering the entire scalp. This is commonly known as milk crust. Beneath these crusts, the scalp may become very much inflamed and painful. Milk crust is removed by carefully softening the scales by the use of sweet oil, and as they are softened they can be brushed off. Milk crust is also known as cradle-cap.

The Eyes and Ears.—It is several weeks before the baby's eyes seem to gain any expression. They appear to be of deep blue or blue-grey hue, and it is some time before the mother can really tell what color her baby's eyes are going to be.

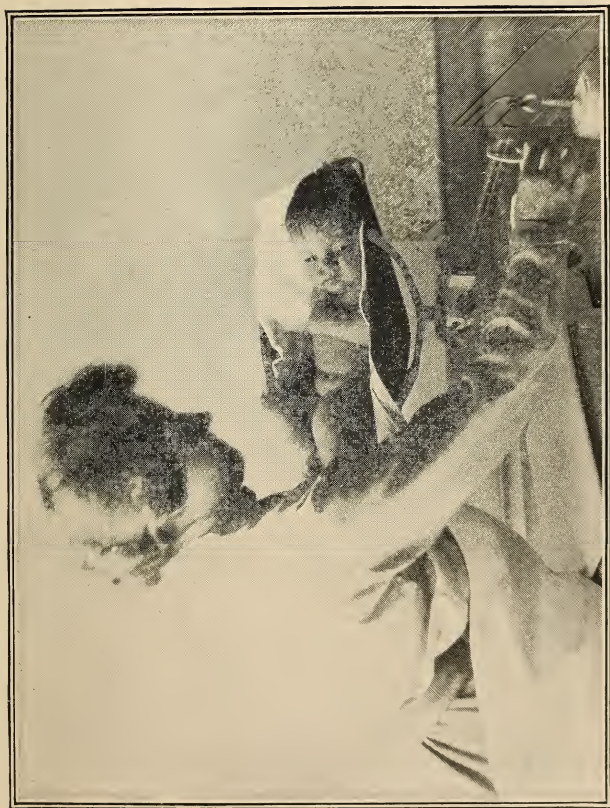
He lies with them tightly closed or half shut most of the time, but blinks at the presence of light. The eye-balls do not always move together, making no attempt to focus on an object for a number of weeks. The baby under three months rarely sheds tears. The second month, the baby begins to notice objects and turn to the light. From the third month on, he begins to follow with his eyes bright or moving objects and familiar faces. He does not notice the difference between colors much before the end of the year.

In a few days after birth, air having entered the ear cavity normally, the baby becomes sensitive to sound and is disturbed by loud noises. Some babies have a very acute sense of hearing and are easily awakened especially by shrill sounds. Babies are usually eight or nine weeks old before they recognize the direction of sound and turn toward it. Many babies at the age of one year seem to recognize musical tones, and before that time have learned to distinguish different voices.

Smell and Taste.—The baby has very little sense of smell during the early months although he generally recognizes the odor of milk. His taste, however, is more sharply developed and it knows the difference between sweet and bitter. The taste for sweets is the most strongly developed. Babies will readily take any kind of medicine which has been sweetened. They will as

readily reject anything of a bitter taste, showing that this sense is also present in a marked degree. Inasmuch as the more complex savours are detected by the sense of smell, and as the baby has little sense of smell which develops very slowly, a keen sense of taste does not appear for several months.

Mind and Speech.—Laughing and crying are the first mental powers the baby exhibits. Crying from hunger or discomfort in the young infant is more or less mechanical and the baby is probably not conscious of any suffering. Conscious smiling or laughing are not evidenced until the second or third month. The baby does not laugh with knowing pleasure much before the sixth month. In the third month, he recognizes his mother and seems to understand when preparations for nursing are being made. In the third or fourth month, the baby reaches for objects and tries to get them in his mouth. He seems to manifest an interest in light and motion, turning toward bright and moving objects. At six months, the baby knows other familiar persons besides its mother, and recognizes places that it is accustomed to be in. When baby is nine months old, he begins to understand many simple things and will respond to suggestions by playing “boo” or “bo-peep.” By the first year, he has developed the idea of choice and shows likes and dislikes. During the second year, the



in the Y. W. C. A. International Institute Clinics, New York City, Mothers Bring Their Babies Each Week to Be Weighed. If the Baby Has Made a Normal Gain the Mother Proudly Displays It to Her Neighbors as a "Better Baby."
If the Child Has Lost Weight, Investigation Is Made of Its Diet and Living Conditions. Scales and Weight Charts Are Essential Parts of Every Baby's Equipment.

baby exhibits moods of anger, temper, impatience, fear, anticipation, excitement and joy. He also senses quantity and number.

During the first two months the sounds of the infant, like its motions, are almost automatic. During the third or fourth month the baby utters many sounds which may resemble words but which have no conscious likeness, and it is not before the eighth month that the average baby utters the first simple conscious syllable. At a year and a half, there is a small vocabulary to express the simplest wants and daily customs, and after the second birthday, the baby will begin to put words together. The mother must remember that speech is often delayed in a perfectly normal baby three or four months beyond the normal time.

SKIN AND TOUCH

The infant's early dark color which proves so disappointing to the mother gives place to his normal baby-pink after the second week and the downy substance on the skin has disappeared with the superficial scales of the skin by the end of the third week. There is practically no perspiration for the first month, then the sweat glands become active and there is a noticeable amount of perspiration over the entire surface of the body. Profuse sweating about the head often accompanies indigestion and is a very com-

mon early sign of some disturbance of nutrition.

The sense of touch is present from the earliest days and is one reason why infants must be very gently handled and never jabbed or prodded to attract their attention. Coarse, harsh clothing, towels and bedding irritate the sensitive skin. This sensitiveness easily increases during the first year. Especially sensitive are the ear and forehead. The skin is sensitive to heat and cold as shown by the baby's discomfort when chilled and the soothing effect of a warm bath. The sense of heat and cold are very marked in the mouth. Babies refuse cold water or milk.

THE SPINE

The newborn baby's spine has great flexibility and none of the later natural curves are apparent except that at the base. The neck is in reality relatively longer than in the adult but appears short because of the folds of fat surrounding it and the height of the breast-bone. It is not until the baby begins to hold up his head, to sit up and later to walk that the curves begin to form in the neck and back. The lower part of the spine grows faster than the upper until after puberty. Because of the great pliability of the spine, the baby should not be allowed to sit upright with his back unsupported before the ninth or tenth month.

THE CHEST, ABDOMEN AND PELVIS

As we have seen from our comparative measurements in the Tables, the baby's chest is small in early infancy in proportion to its later development and to its head. And it is small compared with the abdomen. The narrow chest and shoulders, big head and abdomen give the body an odd appearance, like a small barrel. The nipples are tiny and situated as in adult life. The ribs are more horizontal in infancy than in childhood and the lower ribs more prominent. The young baby's chest is practically round and as he grows older, the development is more pronounced from side to side.

The baby's abdomen is prominent because of the comparative smallness of the chest and pelvis, and because the liver is two and a half times larger than in later life, proportionate to the size of the child. Until the baby is two years old, the abdomen equals the chest in circumference. The hips in boy babies equal the width of the shoulders but are slightly wider in girl babies.

The Umbilicus.—The umbilical cord which is in the center of the abdomen drops off about the fifth or sixth day, leaving a smooth red healing surface which becomes completely closed over with skin by the tenth to fifteenth day. In dressing the cord, it should be kept clean and dry with

boric acid, dusting powder and sterile gauze. At the first sign of any inflammation, your physician's attention must be called to it immediately.

LIMBS AND FEET

The baby's legs are bowed in appearance because there is an actual bowing of the thigh bones which gradually disappears and becomes practically straight during the second year. Before the baby walks, he lies with the soles of his feet turned inward and walks with his toes turned in for a long time. The foot only gradually comes into a correct line. Walking with the toes turned in leads many mothers to believe their babies are pigeon-toed when their feet are in reality perfectly normal.

The baby's foot appears to be flat, without any arch. This is because many of the bones in the foot are not developed and do not develop completely for several years. The foot is protected by thick layers of fat and it is this that gives the flat-foot appearance which in reality does not exist. It is because the little unformed foot is so flexible that the greatest care should be exercised in seeing that even the first stockings and shoes are large enough to prevent any pinching or binding of the foot. Many of the little bones are in the cartilage formation and are very easily twisted out of shape.

The baby will raise up in his mother's lap,

supported, at the age of six months. He will begin to creep about at seven or eight months, but not until he is a year old should he be encouraged to stand, supporting himself by the chairs. Not until the fourteenth month should he try to take the first steps from chair to chair. And remember, this is dependent upon his being a perfectly normal healthy baby who has not been set back by illness or poor nutrition. If the baby has not been well or has been badly nourished, no attempt should be made to hurry his efforts to stand or to walk. For the bones in the under-nourished baby are apt not to be firm enough to support the body weight until the baby's nutrition and general condition show a decided improvement.

NERVES AND MUSCLES

The nervous system of the young infant is slightly developed in so far as the baby's ability to control the movements of his arms and legs is concerned. However, the nervous system has reached a state of development where it has under control the general nutrition of the muscles through the blood supply. All of the baby's muscular movements are entirely without the control of the brain and are carried out without conscious purpose on the baby's part. The baby's arms and legs should be unhampered for a certain time each day so that this involuntary move-

ment of the muscles can be carried out. It is in this way that the child gets the exercise necessary to develop all the muscles and stimulate the general circulation. This free exercise of the limbs is one of the secrets of growth and development. The baby pinned down under heavy clothing and bedding will fail to grow no matter how correct the food may be.

The time when the conscious control of the bladder and bowel is established varies greatly in different children. Training helps to develop this conscious control much earlier. This training for the baby's control of the bowel movements and urination can to advantage be begun successfully as early as the sixth month in all cases.

The second month, the baby begins to hold his head up and by the fourth month supports it and turns it about quite firmly and independently. The very young infant grasps and holds tightly, but conscious reaching and grasping comes about the third month and not until the sixth month does the baby direct his movements and begin to knowingly play with toys.

The growth of the baby's tissues, muscles and bones are dependent upon its exercise and good blood supply, and these in turn, are largely under the direct control of the nervous system. Every means taken by the parents to insure a quiet, calm, well-balanced nervous system provides the

surest foundation for good nutrition and sound health.

TEETHING

Average Age	The First or Temporary or "Milk" Teeth	Number
6 months	Lower central incisors.....	2
9 months	Upper central incisors and upper lateral incisors	4
12 months	Upper molars, lower lateral incisors, and lower molars	6
18 months	Canines	4
24 months	Second molars	4

The coming of the first teeth varies over several months, appearing sometimes as early as the fifth and as late as the ninth month, or even the twelfth month, and often coming sooner in girl babies than in boy babies, and they drop out in the same order, the roots being absorbed.

Mothers sometimes mistake the drooling that starts about the fourth month for the coming of the teeth, but this is due to the development of the salivary glands. You remember, that the reason you could not feed cereal water was the undeveloped condition of the salivary glands, and it is the saliva that starts the digestion of starch.

The twenty first-teeth usually erupt in pairs. When the teeth are backward it may be due to lack of some of the nourishing elements in the milk, and you had better carefully weigh your baby each week to see if it is making the proper gains. Teething is a perfectly natural process and should not cause the baby much disturbance.

If he is restless and fretful it is very often apt to be due to other causes. Don't dismiss it with the thought that "the baby is just teething." See if he is getting too much or too little milk, if he is sleeping properly, has plenty of fresh air and exercise and is not handled too much.

When the gums become swollen and painful, gently rub over them a small piece of clean ice wrapped in a perfectly clean handkerchief. Three or four drops of paragoric on a clean piece of gauze can be rubbed over the gums. Biting on an ivory ring gives some relief. Frequent sips of cool water cool the gums.

It is a wise plan to cut down the amount of food a little if teething upsets the digestion, and if it becomes very troublesome consult your doctor.

DIET FROM FIRST YEAR TO 18 MONTHS

- | | |
|-----------------|--|
| Breakfast: | Bottle, or eight to ten ounces of milk with a little toast, zwieback or two-day bread broken into it, or two to three tablespoonfuls of oatmeal (cooked three hours), or hominy, or cream of wheat thoroughly cooked into an unstrained porridge, with six to eight ounces of milk poured over it. |
| 9 A. M. | Juice of one orange, or baked apple, or apple sauce, or mashed prunes, given one hour before the 10 o'clock feeding. |
| 10 A. M. | Eight or ten ounces of milk from cup or bottle, or if only the bottle is given at the first feeding, give the cereal at this feeding. |
| 1:30 to 2 P. M. | Eight or ten ounces of mutton or chicken broth which has been cooked with some cereal, such as, rice, barley, farina or oatmeal; and with this a small amount of mashed vegetable, such as spinach, peas, |

potatoes or carrots, put through a sieve to have the consistency of fine gruel before being added to the soup. Also a piece of buttered toast, and for dessert, apple sauce, prune pulp or other stewed fruits.

Another midday meal consists of two-day-old bread moistened with beef or chicken dish-gravy, beef tea, or one or two ounces of beef juice, also one cup of milk.

Another meal consists of rice or grits moistened in the same way, and six to eight ounces of milk with a dessert of sago, tapioca or rice pudding (no raisins) or junket or cornstarch pudding. Serve no more than two tablespoons of either of these desserts.

Supper:

5 to 6 P. M.

Eight to ten ounces of milk, or two thin slices of two-day bread with six to eight ounces of milk poured over it. Sugar used very sparingly, if sweetened.

9 to 10 P. M.

Eight to ten ounces of milk from cup or bottle.

Note: Milk should not be given cold. This diet represents the maximum amount given a child of this age. Many thrive on much less. Water should be given freely between meals, but milk should not be given except as mentioned. The child's teeth at this age do very little chewing, therefore the foods should be carefully mashed. If you give less than the quantity of food prescribed in this diet, do not cut down the variety.

DIET FROM 18 MONTHS TO TWO YEARS

Breakfast:

Eight ounces of milk with a slice of buttered toast or two-day-old bread, or an oatmeal or graham cracker.

Another breakfast consists of two to three tablespoonfuls of oatmeal (cooked three hours) or any of the other cereals mentioned in the last diet, with six or eight ounces of milk poured over.

Another breakfast consists of a soft-boiled or poached egg with bread and butter and six to eight ounces of milk.

9 A. M.

Fruit juice, same as in former diet.

10 A. M.

Six to eight ounces of milk with bread, or bread and butter, or buttered graham cracker.

- Dinner:
1:30 to 2 P. M. Boiled rice, or a baked potato mashed and moistened with chicken or beef gravy or beef juice, with six ounces of milk, and dessert.
- Another dinner: One-half to one tablespoonful of spinach, or string beans or peas or asparagus tips or carrots, mashed, with six ounces of milk.
- Another dinner: Six ounces of mutton or chicken broth cooked with barley or rice. The finely divided meat fibre can be left in the soup. Add a piece of bread and butter and dessert.
- Another dinner: Two or three teaspoonfuls of scraped beef or mutton, or minced white meat of chicken with eight ounces of milk and dessert.
- Desserts should consist of plain sago or rice pudding without raisins, a baked apple or a few stewed prunes. Desserts should not be given in the same meal with green vegetables.
- Supper:
5 to 6 P. M. Bread and milk, six to eight ounces, or milk with graham cracker or toast or zwieback, or bread and butter.
- Another supper: Two or three tablespoonfuls of oatmeal or other cereal porridge with eight ounces of milk.

Note: The child of one to two years should not receive more than twenty-four to thirty-two ounces of milk a day. It is important that the diet should include other foods, such as those just mentioned, but in cutting down the milk, the baby requires more liquid and this should be supplied by giving plenty of water between meals. This diet is sufficient for a hearty child. The average baby will thrive on smaller amounts of the same variety of foods.

DIET FROM SECOND TO THIRD YEAR

- Breakfast: Three tablespoonfuls of well-cooked cereal with cup of milk, in addition to the milk poured over the cereal or two to four ounces of cream on the cereal.
- Another breakfast: One soft-boiled or poached egg with piece of bread and butter and cup of milk. A little hashed chicken can be substituted for the egg, and a bran biscuit for the bread.
- 10 A. M. Juice of an orange, or baked apple.

- Noon-meal: Portion of strained soup or broth (not greasy) with a small piece of beef-steak, roast beef, chicken (white meat) or fish (the bones carefully removed), and a portion of baked potato or macaroni or rice. Small portions of such other vegetables as peas, string-beans, squash, mashed cauliflower, strained stewed tomatoes, stewed carrots, spinach and asparagus tips can be judiciously added to the diet. A piece of bread and butter with plain dessert should complete the dinner, with water to drink instead of milk.
- 3 to 3:30 P. M. Most children thrive best on three meals, but if the child is a small eater and requires something at this time, give a cup of milk and graham cracker, or a cup or broth and piece of zweiback, or a scraped raw apple or pear, giving the fruit especially if there is constipation. Children convalescing from illness need this extra nourishment in the middle of the afternoon.
- Supper: Bread and butter and a cup of milk.
- 6 P. M. Another meal: Bread or graham or oat-meal crackers and milk.
- Another meal: Three to four tablespoonfuls of cereal porridge with eight ounces of milk.

If the child sits at table, never start giving him articles of food from the diet of the older children, and he will not begin to ask for them. Meals should be at regular hours. Deviation from the usual time throws the digestion out of order. There is more danger of over-feeding than under-feeding. Do not give any highly seasoned food or left-over dishes. The chief meal should be at noon and the evening meal light. Meat only once a day and in some children only three times a week if it does not seem to agree.

Never give coffee or tea or chocolate, and cocoa only rarely if it is not too rich. Cream, if given, should be used in small amounts. Avoid all uncooked vegetables and give raw fruits except orange juice and scraped apple very cautiously, if at all. Avoid all cold foods and never give ice cold milk or water. A little ice cream eaten slowly and fed in tiny morsels can be occasionally given. Avoid all sweets, candies, cakes; and never permit pastry of any kind. A piece of candy may be given with the meal—not between meals. Never allow hot rolls or fresh bread or biscuit or fried cakes.

The diet for the sick baby is described in the volume, *The Proper Feeding of Infants*.

CHAPTER XVII

THE FORMATIVE YEARS

THE NEGLECTED AGE

The years of childhood between three and seven comprise The Formative Age. Other designations have been made, such as, the Pre-school Age and the Neglected Age. I believe the word, neglected, applies to this period in the life of the average child with peculiar precision.

I desire very much to enumerate to you my reasons for referring to these formative years as The Neglected Age. There are, indeed, many explanations for the use of this term, and while they do not all apply in any one instance, some of them are factors which enter into the daily life of nearly every family.

First, I wish to emphasize why it is of such vital importance to the future life of the child that these years be the most carefully guarded instead of the neglected ones. During this period it is of far-reaching importance that the proper foods be insisted upon because cell growth and development are going on with unbelievable rapidity.

Preparation for school-life at this time is daily advancing. The child who enters school at the age of six or seven below the average standard of his fellow schoolmates almost invariably drops behind in his studies, and what is even more unfortunate, the child entering school with a physical handicap, finds great difficulty in overcoming it. The school program is mapped out for the average, healthy, normal pupil and the child physically weakened by improper care during the pre-school age is under too great a strain in his effort to keep pace with his classmates.

We have still another reason which outranks this in importance. If the rapidly growing child during this period fails to receive the proper kind of food to meet the cell requirements of the body as they pass swiftly from one development to another, the tissues which these cells compose fail to receive the right nourishment to make strong organs and muscles. They are, consequently, weak and flabby. Their resistance against disease is far below normal. Such a child readily falls a prey to any of the infectious diseases so prevalent during the winter and spring months. With weak, soft and undersized muscles all such children in entering upon the daily games and outdoor exercises of their fellow playmates are prone to overtax their strength. They fatigue easily and will come in from play utterly exhausted, either pale or with

an unnatural flush, with dark circles beneath the eyes, and usually with little or no appetite.

You would be amazed at times if you would take the temperature of one of these children after hearty exercise. It is not uncommon to find half a degree, a degree and sometimes two degrees of fever. The child has used up its small reserve energy and this temperature means no less than that the normal tissues of the body are being broken down and burned up to supply the necessary vitality to keep the child going.

Unfortunately many parents overlook this important sign, masked, as it often is, by childish excitement and the unnatural flush of the cheeks. But if you will only stop to consider, it will many times explain why your child is nervous, has a poor appetite, sleeps badly, fails to gain properly in weight, and continuously remains below normal despite all the other efforts you put forth.

There is another type of nervous child, made so, not by neglect, but by an equally serious error, that of over-attention. This, as a rule, begins during the formative years. It is commonly given to what we call the precocious child, the one whose mind seems to be developed beyond its years.

Many parents and some teachers have an unfortunate habit of trying to show these children off in the presence of company. They are en-

couraged to memorize long recitations, and urged before audiences under conditions of great nervous excitement. Some of these little tots are early taught to dance fancy steps, or to perform on some musical instrument under the same trying conditions. If you will observe attentively one of these children performing some feat beyond its years, you will readily notice the great emotional excitement under which the little one labors, and the reaction of mental and physical exhaustion which inevitably follows.

All of these nervous children suffer from an habitual loss of appetite. They are what we call, finical or notional eaters. They toss about and are restless in sleep and soon develop unmistakable signs of malnutrition.

The age of from three to seven can be aptly called, "The Neglected Age," in many families where there are other children. Especially is this true if the mother has older children who must be prepared daily for school. Their clothes and books and lunches take up so much of her time that attention to the little tot who does not go to school is too often sadly omitted. The danger of this neglect becoming more serious is only further enhanced if there is added the further responsibility brought about when there is a young baby in the family.

Never lose sight of the little one during the run-about age! His food, his clothes and his

fresh air are of as vital importance as they will be at any time during his life.

I believe that a warning ought to be given to many mothers concerning a habit which so easily develops and for which a busy mother should not be criticised. It is a very natural reaction following the first or second year of the baby's life during that time when she has had to be constantly watchful of every ounce of his food with the attendant care and supervision which have been so essential day by day. When the time comes that the baby is able to sit at table and partake of other articles of food besides milk, the mother is apt to become forgetful of the importance of properly choosing his food. Others oftentimes interfere with her discipline, because many people have the foolish idea that when a child's teeth have made their appearance he is able to eat practically everything.

One of the most difficult problems that you as a mother encounter is in getting certain children to eat the proper kinds of foods. This is a habit which easily develops during the neglected age. You will encounter it in the nervous child and in the sympathetic and impressionable child.

You have had the opportunity of observing from time to time many of these children. The mother will tell you that it is impossible to get her child to eat this or that essential food. She will add that only certain things will be taken

by the child, oftentimes only milk or sweets, or cereals, or in some cases, only meat and potatoes, practically all vegetables being refused.

The first step with such a child is to correct, as I have already pointed out, the cause for the nervousness, if it is due to physical exhaustion from too much play or too much excitement. This can be accomplished with a little persistence. Make your child lie down for one or two hours after the mid-day meal, even if he does not go to sleep. Insist upon establishing the habit. Put the child in a room with lots of fresh air and sufficient covering. You will be surprised to see how soon the habit of taking the regular noonday nap will develop. This short rest in the middle of the day is almost invariably followed by a marked and prompt improvement in the child's nutrition.

Do not allow your child to play too hard or too long. If you find the daily recreation is making him nervous or exhausted, it can easily be limited. And if your child is one of the precocious, unusually intelligent little ones, it is all right to have him speak short pieces before company, occasionally, but do not tax the little brain with long, tedious recitations or physically exhausting dancing or the performance of unusual feats on the piano. These little overtaxed nervous systems demand a terrible physical toll which is unfailingly taken in the later years. These

children inevitably grow up to be pale, undernourished, nervous sickly young men and women.

Many childish preferences of diet are due to no other cause than a desire to imitate older people, or to impressions received from careless conversation among grown-ups. The child mind receives the suggestion from the older members of the family that certain foods are unpalatable and certain foods are indigestible. Children are great imitators. They are very fond of doing what their elders do. Rather impress upon the child's mind that the necessary foods are the good foods, that their bodies need these very foods in order that they may grow up to be strong, successful men or beautiful and charming women.

There is another way in which a mother, unless she is always watchful, is prone to neglect unconsciously these children of the formative age. Because they are old enough to play about the house and amuse themselves, busy mothers fail to realize that these children must be bundled up and taken out into the fresh air every day just the same as when they were babies. Even in pleasant winter weather do not fail in this daily airing. Dress them warmly and let them play out in the snow every day. The child warmly clothed will not want to come in the house and these are the children who have the natural rosy cheeks and grow into strong, healthy boys and girls.

The question you are now asking is: What foods should I be giving my child during these pre-school years? and, a question of equal importance, What foods should I not allow him to eat? Before I supply you with the tables which will guide you in this matter of diet, I want to emphasize a few words of caution.

In the first place, do not allow constipation to exist! A daily evacuation of the bowels should never be overlooked. You should begin early in life, before your child is even a year old, to take him to the toilet at a regular hour each morning.

There is much that can be done in the way of diet to overcome habitual constipation and this big subject is discussed in a later chapter. Briefly let me say that fruit juices, cooked fruits, whole wheat bread and well cooked vegetables should correct the difficulty entirely without any unnatural aids.

Be very cautious about giving drugs to your children for the correction of constipation. It leads only to the necessity of continued usage. The much safer method for you to follow, if the constipation becomes persistent, is to use one or two, or even three, teaspoonfuls of one of the mineral oils at bedtime. These oils are not absorbed, as are the drugs. They merely act as a lubricant and their tendency is to permanently correct constipation.

Another caution which I desire to make is the

careless habit of allowing children to eat between meals. This in my opinion is a most reckless practice. The stomach forms habits of receiving foods at regular intervals and interruption of these habits by irregular eating invariably leads to serious indigestion.

Another warning is in regard to the use of milk. Milk is a valuable food and necessary for the growing child. But during the run-about age, from fifteen months on to the sixth or seventh year, mothers oftentimes err in allowing children too much milk to drink. It destroys the appetite for other very necessary foods. These children should receive three to four cups of milk a day at meals either as a drink or poured over the cereal and other foods. This is equivalent to twenty-four to thirty-two ounces. And this is also a fact to be remembered: the cream or fat in milk is not well borne by some children during these preparatory years. It repeatedly causes coated tongue, foul breath, a loss of appetite and an obstinate form of constipation. When this occurs try for several days the use of skimmed milk. These symptoms will then usually disappear.

The following diet suggestions must, of necessity, be made in a general way. Changes will need to be instituted in individual cases because unusual conditions will arise which require special diets. These are the foods, however, which

can be safely taken by the normal, healthy child between the ages of three and seven years.

All rich, highly seasoned dishes are to be avoided. Milk must still form a very prominent article of diet. The child should receive from three to four cups a day. This amount includes milk which is used on cereals and other foods. Cream should be employed with great caution and in small quantity. (If the milk is obtained from Jersey or Guernsey cows, and the child has any of the symptoms mentioned above, half of the cream from the milk should be removed.) The heartiest meal should be given in the middle of the day. The supper should be light. Meat should never be eaten more than once a day except for some special reason. (It is my opinion that before the fifth year the use of meat three or four times a week is sufficient.)

DIET FROM THIRD TO SEVENTH YEAR

Table A—Safe Foods for Daily Diet

Meats.—Broiled beefsteak, lamb chop and chicken; roasted or boiled beef, mutton, lamb, chicken and turkey; broiled or boiled strictly fresh fish; crisp bacon.

Eggs.—Soft-boiled, poached, scrambled, omelette. (One egg for breakfast; one for supper; not more than two a day.)

Butter.—Good butter should be used liberally.

Cereal Foods.—Light wheaten and graham

bread, (two or three days old) toast, zwieback; plain unsweetened biscuit, such as oatmeal, Graham, soda, water, etc.; hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni etc.

Soups.—Meat broths and vegetable soups of nearly every kind.

Vegetables.—White potatoes, thoroughly cooked and mealy, baked, boiled and mashed may be given daily. Don't include sweet potatoes and fried potatoes. Peas, spinach, young greens, carrots, asparagus (except the hard parts), string beans, young lima beans boiled and well mashed. (Not baked beans.) Salsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago. The standard brands of canned vegetables when fresh green vegetables are not obtainable.

Fruits.—Cooked fruits of all the common varieties, sweetened and having the skins and seeds removed. Plain jellies. Oranges, scraped apples, peaches and pears when well-ripened. The juices only of strawberries, raspberries, blackberries, pineapple.

Desserts.—Light, plain puddings only, such as rice pudding without raisins, bread pudding, cornstarch, Indian pudding, or farina, baked custards, junket, jello, occasionally ice cream. Only plain cake such as a piece of light sponge cake and well-baked cookies of the

plainest varieties without raisins or cocoanut or much sweetening.

Beverages.—Milk and water only. Milk to be taken only with meals serving as both food and beverage. Water to be taken freely between meals.

Table B—Foods To Be Avoided

Meats.—Pork, sausage, ham, goose, veal, corned-beef, liver, kidney; all dried and salted meats; rich thickened gravies; all fish that is not strictly fresh; all fried meats and fried fish.

Eggs.—Fried eggs, hard boiled eggs (except the yolk that has been finely grated), fancy omelettes or souffles, and all eggs not strictly fresh.

Breadstuffs.—All fresh bread, hot rolls, biscuits, pancakes and buckwheat cakes; doughnuts, anything heavy or doughy, or fried.

Soups.—All rich greasy soups. Tomato soup.

Vegetables.—Sweet potatoes, raw tomatoes, radishes, cucumbers; pickled vegetables, such as onions, slaw, gherkins; celery, corn of any kind (excepting cornmeal); old beets, cabbage, egg plant, cauliflower, and all vegetables not thoroughly cooked.

Salads.—Salads of all kinds should be avoided as they are not easy of digestion.

Fruits.—All unripe, sour or wilted fruit; bananas, cherries, plums, pineapples, grape-

fruit, lemons and all raw fruits with seeds; melons, unless strictly ripe and then only sparingly. All over-ripe fruit; spiced jams, very sweet jellies and all rich conserves and dried fruits. Avoid skins, seeds, stones or tough pulp.

Desserts.—All pastry, pies, tarts; rich puddings and cakes; sweet cookies, candies, nuts and raisins; preserved or candied fruits; cheese.

Beverages.—Avoid tea, coffee, rich chocolate, lemonade, cider, soda-water, etc.

CHAPTER XVIII

TEACHING HEALTH TO THE SCHOOL CHILD

The physical health of the child comes first. Every parent should realize that this is the greatest financial investment, for the days to come. It is the small trouble overlooked in the beginning that grows into big doctor bills and chronic invalidism. Health is a matter of habit. The mother who realizes this even without the father's aid or the helpful medical inspection of the schools, can herself accomplish great things for her child. She should not be compelled to work alone, however, but should have the co-operation of all the family, her physician, the Board of Health, her Woman's Club, Church and School.

The father is interested when he realizes that health in his boys means strength and efficiency. The mother, when she knows that health in her daughters means happiness and the grace of fully realized womanhood. All are interested when they appreciate that health results in capable contented children.

The boy can be made appreciative of health because he wants to become a great athlete or

successful in business or politics. The strain of competition is so great that to do this a boy must have strong vital organs.

The girl desires beauty, shapeliness, clear skin and good color, which can only be had through health.

You must tell the young child *what* to do. To the older children you should tell *why*. They must be taught early that health is a matter of the daily care of the body, that it is not a gift of nature. The proper care of the body makes the weak at the start, strong in the end. The failure to take this, will make the strong at the start, weak in the end. Roosevelt was a weak and sickly boy. Right living in the open, good food, proper exercise, and the will to do it made him a mental and physical giant.

Health must be taught in the home, the school, on the playground, during vacation, at church and in all public entertainment. By showing the children the results of good health each child can be made to follow every rule willingly that he too may become sound and capable in mind and body, that he may serve his parents, his country and himself to his fullest possibility.

THE RULES OF HEALTH

Remember, everything in nature which grows throws off waste. The body in growing throws off waste matter which is poison to it and must

be gotten rid of. This expelling of waste goes on through the bowels, the kidneys, the lungs and the skin. Each one of these organs must rid the body of its share of waste daily or a slow poisoning takes place.

Care of the Skin.—Every square inch of the skin is filled with little sweat glands. If all of these glands of your body were placed end to end they would make a procession eight miles long. Each day these glands pour out on the skin nearly one pint of water which has poisonous waste dissolved in it. The mouths of these glands must be kept open. If the waste matter dries and accumulates on the skin the mouths are stopped and the pores are clogged. You remember the actual case of the boy whose body was covered with gold leaf for an entertainment. The mouths of all the sweat glands of the skin were closed, his body could not get rid of the poisons through the skin, he was taken ill and died in a few hours.

The child should be taught early the reason for the daily bath of soap and warm water, that the mouths of the pores may be opened and the refuse be washed away. With most children after the warm bath the cool sponge can be given, especially around the neck and chest. This is invigorating and has a splendid effect upon nervous children. Some children do not react well to the cool water. Those who take cold easily

had better bathe at night. If bathed in the daytime, they should not go outdoors for an hour. After the bath the skin should be rubbed briskly with a rough bath towel which brings a warm red glow of blood to the surface and has a splendid effect upon the circulation as well as the nervous system.

If after using the cool sponge the skin remains pale or bluish and the child feels cold and depressed it should be promptly discontinued. Never give a cool sponge to a delicate child except on the physician's advice. And remember, the cool sponge bath should not last more than three minutes. The warm bath should not be longer than five minutes and there should never be a hot bath unless the physician directs its use. It is exhausting, produces excessive sweating and endangers the child to cold. The temperature of the warm bath should be about that of the body. There are times when the bath a little warmer than the body temperature given just before bedtime will quiet the nervous, restless child and insure a good night's sleep.

Children who go in swimming should remain no longer than fifteen or twenty minutes because the water which is so much cooler than the body chills the skin, and the child who remains in longer than this does not react and the blood is driven to the deeper organs which has a very depressing effect.

The early care of the hair and scalp are important. Dirt and germs in great quantities accumulate around the roots of the hair. The scalp can quickly get into an unhealthy state with actual sores and infections in which pus forms. A dirty scalp is an unhealthy scalp, and on an unhealthy scalp the hair cannot grow properly. The child should be early taught the need of a thorough shampoo once a week. An abundant lather of tar soap or green soap rubbed into the roots of the hair for several minutes and then rinsed with warm water to remove all of the soap and dirt, and rinsed again with cool water to stimulate the scalp, is a weekly routine that will keep the hair and scalp in healthy condition. Excessive scales or dandruff may make it advisable to give the shampoo twice a week, with an after-massage of salicylic acid vasogen rubbed well into the scalp.

The nails should be kept trimmed, and cleaned by the use of a stiff nail-brush because all sorts of dirt and germs accumulate beneath them. The child should not only wash his hands, but clean his finger-nails before eating. Dirty finger-nails actually carry disease germs to the food and into the mouth. Clean finger-nails are a sign of good breeding.

Care of the Teeth.— Enough cannot be said on this subject. The story of the milk-teeth has already been told you in the chapter on *The Baby's*

Hygiene. The permanent teeth begin to make their appearance about the seventh year. The first four molars called the six-year molars, parents must remember, are permanent teeth and must not be mistaken, as they often are, for temporary teeth, and pulled because of a cavity. No teeth come in their place and if they are pulled a permanent gap is left, which as you know, *not only interferes with the shape of the jaw but mastication of the food and digestion.* In a recent meeting of dentists it was disclosed how parents had frequently let one or two, or even the four first molars be sacrificed, because appearing at the sixth year they had been mistaken for delayed temporary teeth.

In the chapter on *The Baby's Hygiene* we have already learned the importance of starting early to care for the temporary teeth. These temporary teeth must not be allowed to decay. If these teeth decay and become infected from neglect, this infection extends through the gums to the permanent teeth pushing their way out beneath them.

It has been well said, that if a child's mouth receives careful attention, the services of a physician will rarely be needed for any other part of the body.

If infection gets into the teeth or around the gums it can cause just as disastrous results in producing disease as an infection of the tonsils.

Rheumatism, diseases of the joint, heart disease, anemia, malnutrition, and some of the more serious types of nervous diseases, such as intractable headaches, muscle spasms, St. Vitus' Dance, and even epilepsy, have been repeatedly traced to infections around the gums and roots of the teeth.

Now let us study the various ways in which the teeth decay and the roots and gums become infected. First, there is the neglect of the toothbrush and failure to keep the teeth clean. The child must be taught the advantage of brushing the teeth after each meal, or at least once a day. He must understand that particles of food that get between the teeth ferment causing the enamel to break down and painful cavities to form. The child who does not have the proper diet suffers from malnutrition and often one of its first manifestations is decaying teeth. The child allowed to eat an excessive amount of candy and sweets is the one who so commonly is subject to bad teeth. Particles of candy adhering to the teeth rapidly ferment and cause decay. Moreover, candy-eating upsets the stomach, throws nutrition out of balance and this interferes with the development of the teeth.

From unclean food, from dirt carried on the hands to the food and into the mouth, from decomposing food between the teeth or in cavities, infection gets into the gums around the teeth. This is called Rigg's Disease. Infection also

travels from cavities in the teeth and from around the teeth to the roots, and there forms what is known as blind abscesses which are not painful, the child or grown person being entirely unconscious of them until the health becomes undermined from the poisons absorbed into the blood from them. These can only be detected by the X-ray photograph which can now be had in practically every good-sized town in the United States.

Because the teeth are close to the tonsils, infections of the gums readily extend to the tonsils and are also carried by the little lymphatic channels to the glands of the neck, causing them to become infected and enlarged.

The child must early learn to use dental floss, which can be purchased in any drug store, to remove all particles of food from between the teeth each day, as regularly as the tooth-brush is used. After each brushing, the mouth should be thoroughly rinsed, using a glass of water in which is dissolved a teaspoonful of table salt. This has three purposes, it rinses out the particles of food removed from the crevices of the teeth by the brush and the dental floss; it hardens the gums; and it stimulates them, protecting against infection.

Every six months your child's teeth should be looked over by a competent dentist, any little cavities promptly filled, and the teeth thoroughly

cleaned and scaled of all accumulations. These hardened accumulations have been observed in the mouths of some children to such an extent as to actually interfere with the proper closing of the jaws, thus causing the bolting of unmasticated food.

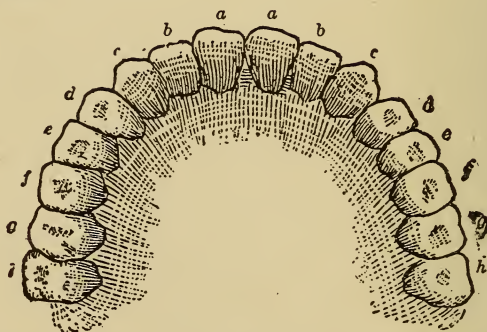


Diagram showing the Permanent Teeth. a—Central Incisors. b—Lateral Incisors. c—Canines. d—First Bicuspid. e—Second Bicuspid. f—First Molars. g—Second Molars. h—Third Molars.

The permanent teeth come in crooked at times. You must never fail to have them straightened by your dentist, held by braces until they have grown into the correct position. Crooked teeth deform the mouth and greatly lessen your child's personal appearance.

Do not be in a hurry to pull the temporary teeth; they are loosened and pushed out by the incoming permanent teeth. The latter make their appearance in the order shown in the following table.

Eruption of the Permanent Teeth.—The permanent teeth are thirty-two in number. The ear-

liest ones cut are the first molars which come in just back of the temporary second molars. They appear about the age of six and are called "the six-year-old molars." The order and dates of appearing are subject to considerable variation.

4 First molars (2 upper and 2 lower).....	5 to 7 years
4 Central incisors (2 upper and 2 lower).....	7 to 8 years
4 Lateral incisors (2 upper and 2 lower).....	8 to 9 years
4 First bicuspid (2 upper and 2 lower).....	9 to 10 years
4 Second bicuspid (2 upper and 2 lower).....	10 to 14 years
4 Canines (2 upper and 2 lower).....	11 to 13 years
4 Second molars (2 upper and 2 lower).....	13 to 16 years
4 Last molars (wisdom teeth) (2 upper and 2 lower)	16 to 25 years

FRESH AIR

The air we breathe contains oxygen, nitrogen and very small amounts of carbonic acid gas, ozone and argon. Oxygen is the element upon which life depends. The air we breathe out contains less oxygen and more carbonic acid gas. Our blood has given off the latter, which is one of our poisonous body wastes, and has taken up quantities of oxygen. Pure air, to be fit for breathing, must not contain more than ten parts carbonic acid gas to every ten thousand parts air. In the average size sleeping-room one person breathes out in two hours enough carbonic acid gas to render the air of the room unfit for further breathing. Therefore, it is plainly seen that every sleeping-room must have a sufficient outlet to allow every bit of air to escape every two hours during the night and a sufficient opening to

allow the room to fill up completely with fresh air every two hours. If there are two people asleep in the same room the air will be unfit for further breathing after one hour. And people moving about throw off more poisonous carbonic acid gas in proportion to the violence of their exercise. In improperly ventilated sleeping or living rooms we become drowsy, pale and listless. The brain refuses to work; all our organs become loaded with this poisonous gas and fail to do their work correctly. The bowels become sluggish and constipated. The appetite is poor. Nutrition suffers. The child's resistance to all diseases is lowered.

A child who is forced to breath impure air, catches cold readily, has frequent attacks of tonsilitis, the adenoids enlarge, the infection travels down the bronchial tubes and sets up a chronic bronchitis, followed by tuberculosis or the dangerously acute disease of pneumonia. The blood becomes thin and the child pale.

Many mothers think the child gets sufficient fresh air out of doors through the day so that ventilation of the living and sleeping rooms is not essential. Let me answer that the child to be well has got to have fresh air every moment. The body is using oxygen every time the heart beats and is breathing out carbonic acid gas with every breath. The child has got to have fresh air in the school-room, in the play-room, in the

sleeping-room, in fact, wherever he is. Don't think that cold air is necessarily fresh air.

Put up your child's windows at night. Don't have the bed in a draught. Cover him warmly but not too heavily. See how well he will sleep with these measures, how his appetite and appearance will improve. How soon he will stop having repeated colds. And don't forget about the sunlight in the rooms during the day. The direct rays of the sun kill more disease germs than any other disinfectant we know about.

In our largest cities we have open air schools for the pale, under-weight, anemic and nervous children, and those with enlarged glands. Bundled up in coats, sweaters, caps and mittens, these children remain out of doors in their open air school rooms all day. These schools have been in operation for some time and their marvelous benefits to these delicate children amaze those who give it a moment's thought.

I want to add a word of caution to those mothers whose children are sickly and who live where they cannot have the advantages of the open air school. The child's health comes first—before books. Keep your weak or nervous child out of the crowded school-room until his health has been built up. Bundle him up and keep him out of doors until his health and resistance is such that it is safe to send him to school to stand exposure to the diseases of childhood.

CARE OF THE BOWELS

Practically all the nourishment in the food we eat is taken up by the blood in the intestines. All food leaves some refuse which is of no value as nourishment. This must be gotten rid of because all along the lining of the intestines live bacteria which attack this residue and cause it to decompose if it is left there too long. Moreover, the poisonous material and gases thrown off from this decomposing mass in the bowels become absorbed by the blood and carried to all the organs of the body. This is rank poison and it can foster nearly every disease known to man if allowed to accumulate. It can quickly counteract all the good effects of proper food, correct hygiene and fresh air.

The child must be taught in the earliest years that the bowels must be completely emptied each day so that no refuse is left in the body to decay and decompose. The mother can easily make an object lesson, by pointing out some decaying food that has been carelessly left outside, and explaining to the child in a way he will never forget, how this same process goes on in the bowels and how bacteria are actual tiny living things that multiply with frightful rapidity.

You taught your child early that the bowels like every other organ in the body soon develop habits. You demonstrated to him that when you put him on his chamber at a certain time each

day the bowels soon formed the habit of moving at that time.

The drinking of five or six glasses of water each day is not only important in keeping the bowels active but in aiding the kidneys to carry off their share of waste properly. And it is through the kidneys that a large amount of the poisons are daily excreted in the urine.

The diet is the first means to employ in overcoming constipation and this is taken up in the final chapter.

SLEEP

Every moment the child is active, energy and some of the tissues of the body are being used up. Every moment he is asleep these tissues are being built up again and energy is being stored for the next day. The body of the active, growing child needs long hours of rest for growth. The child under six years of age must have twelve hours in bed even though he does not sleep all of this time. Putting him to bed at a certain hour each night is the best means of developing the regular habit of sleep.

The child from six to fifteen years must have ten hours of sleep. It is not hard to realize what sleep can accomplish. The child with proper rest will immediately show the results in improved nutrition. And this is the only measure needed to overcome some cases of malnutrition. The child who is backward and dull in school may

only need more hours of rest for repairing and renewing muscle and nerve tissue.

The nervous, pale, thin child needs an extra hour or two of rest after the mid-day meal. He should be put to bed in a darkened well-ventilated room. Such a child soon learns to get a two-hour sleep which will accomplish wonders in building him up. The room in which the children sleep should be cool, with the window open. The covering, warm but not heavy. They should be put to bed between eight and nine each night. This allows time, if the heavy meal comes in the evening, for the stomach to empty itself. The child who goes to bed with a loaded stomach is restless and suffers from indigestion. Do not allow candy eating after the evening meal.

If the child is restless and does not sleep, find the reason. The bowels may not have moved during the day and if not, an enema should be given before he goes to sleep. Enlarged tonsils or adenoids may compel mouth breathing, and this will make him restless and uncomfortable. The child who is restless at night may possibly have worms, or have developed bad sleeping habits. This is taken up in the final chapter.

CLOTHING

One of the most common causes of catarrh, colds and bronchitis is the dressing of children too warmly indoors and not warmly enough out-

doors. With the temperature of the room at 70° summer heat, in the winter time when the children are dressed in their warm underwear and other heavy clothing, the sudden change to outdoor temperature, often fifty degrees lower, with little additional clothing, this is a very common cause for "catching cold." The pulse beat in children is far more rapid than that of adults, their blood circulates faster, consequently they are more easily overheated and afterwards chilled. The heavy clothing in the warm room causes perspiration and the quick change to the cold air, with little more clothing, causes rapid chilling of the body, driving the blood in, causing congestion of the deeper organs and this condition favors cold and catarrh.

The error is sometimes made of keeping the child's winter underwear on in the summer. This prevents the skin from getting rid of the body heat and unless the heat generated by the food is thrown off through the skin, the body temperature gets too high, the child becomes nervous, restless and irritable and fever may develop. Give the child the lightweight but warm wool or wool-and-silk or wool-and-cotton underwear with long sleeves, during the cold weather, but keep heavy sweaters, long warm coats, mittens and caps for outdoor wear, and do not let the child run out to play in cold weather without sufficient additional clothing.

Do not allow children to sleep in their heavy underwear which has been worn during the day. This underwear should be aired at night. The warm sleeping garment should be looser, and this should be aired during the day. The garments worn next the skin are full of perspiration, and their regular airing and drying is as important as bathing.

EXERCISE

Most children get plenty of exercise in their outdoor games, walking, running and jumping. The child who becomes exhausted and utterly fatigued by ordinary exercise must have his heart examined by the physician. This is important. The heart may be weakened or diseased and the strain of hard playing may be so great as to permanently damage it. There is always great danger of the sickly, nervous child over-exerting in his desire not to be outdone by the other children. Under the stress of excitement they easily overdo. Guard the recreation of your children carefully. Insist upon the two-hour rest in the middle of the day for the sickly child.

Teach children the value of deep breathing early. Show them how to take the breath in slowly through the nose and slowly exhale it. Children with round shoulders and narrow chests must be given special exercises. The dumb-bells, Indian clubs and pulley-weights are all splendid.

For those who do not have these advantages practically the same benefits may be had from the following deep-breathing exercises, given before an open window or door morning and night.

Deep-Breathing Exercise.—Stand erect, and to stand erect simply raise the chest high centering the thought on the chest, when this is done the shoulders and abdomen fall naturally into a correct position. Now raise the arms straight up, palms forward, and extend them in a straight line above the head. Next, keeping the knees unbent and the arms still extended straight sweep the arms slowly downward until they come as near touching the floor as can be done with the knees unbent. While the arms are swinging slowly down gradually breathe out all the air in the lungs. Hold this position for two or three seconds and then slowly raise the extended arms forward and up until the body comes into the upright position again with the chest high and the arms raised straight above the head. While swinging the arms slowly up to this position breathe in a long deep breath. Hold it; close the fists and flex all the muscles in the arms and with clenched fists bring the arms down, elbows bending out, until the fists rest in front of the armpits on either side of the chest and the elbows come as near touching at the back as possible. While forcibly bringing down the clenched

fists, hold the breath which in this way is forced to the bottom of the lungs, and when the fists rest on the chest exhale all the breath in the lungs slowly, dropping the hands to the side. Then raise the hands again to the first position, extending straight above the head, palms out and repeat the exercise, expelling the air with the downward sweep of the hands; inhaling it with the upward sweep of the hands and forcing it down in the lungs with the downward sweep of the fists to the chest, then expelling it. Repeat it three times only the first day, and increase by one exercise each day until up to twenty times morning and night.

Exercise for Constipated Children.—Lie flat on the floor or in bed, with arms outstretched over the head in a straight line with the body, legs straight. Slowly raise the body, keeping the arms outstretched and the legs and heels flat on the floor, until the fingers touch the toes. Do this five times each morning and increase to ten times. If the child has a stubborn tendency to constipation let him do this twice a day.

The Nervous and Forward Child.—The nervous child usually has a nervous mother or an irritable father. Mothers who are easily upset, overanxious and worried over their children, are constantly holding up a bad example for the small ready imitators. A child likes sympathy and soon learns to do things that focus attention

upon him. A child quickly finds that if he is easily disturbed he wins extra attention. This becomes the spoiled child and the spoiled child becomes the spoiled adult. Many things produce nervousness in a child, such as improper hygiene, poor food, infected tonsils and teeth, lack of fresh air, improper rest and sleep. But there are thousands of children in whom these errors are not allowed to persist that remain nervous. Their care is a matter of discipline. Not the constant nagging that keeps forever at the child and makes him still more irritable but the calm effort to turn the child's thoughts into channels of interest away from himself. The nervous child burns up energy rapidly and needs less exercise, more rest, and everything done to build up the general health. The cool sponge of the body after the warm bath, the ten minutes swim in cool water, the deep-breathing exercises and all the other attentions to hygiene, are invaluable. Mothers and teachers must carefully guard the precocious child, the abnormally bright mind. He must always be held back; not pushed ahead. The constant mental exertion far beyond his years, in accomplishing difficult feats, such as memorizing recitations and musical compositions and complicated dancing steps, require too much concentration and mental application for the undeveloped mind. This is all done at the expense of the body and eventually leads to a

nervous breakdown. The precocious child should spend less time at his books and music and more time in outdoor recreations.

AWARDS OF MERIT

The mother in her task of teaching health should employ some of the measures that have proved successful at school and in the business world. Children have their own interests and do not relish the idea of taking time to do the daily little things that bring their own reward of good health and happiness. They are too young to realize as you do what this will mean to their future. Therefore, it is well to establish a system of reward for careful attention to these details. Give the child who gets his lessons in hygiene each day, as you direct them, a good mark. Let it be the word of praise spoken in the presence of the one the child admires, the extra pleasure or play-spell, a day's fishing, or excursion to town, the "movies," a new story-book, a little party, something that makes a lasting impression of pleasure. The child should be taught the benefits of doing these things without additional reward, but it has been proved in all teaching that the lessons are more aptly learned when there is something pleasurable to look forward to as a result.

RIGHT HEIGHT AND WEIGHT FOR BOYS

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.
39	35	36	37	37										
40	37	38	39	40										
41	39	40	41	42										
42	41	42	43	44										
43	43	44	45	46										
44	44	46	47	48										
45	47	47	48	49										
46	48	49	50	51	49	54	57	62	71	78	86	91	97	110
47	49	51	52	53	51	56	59	65	74	82	90	94	102	116
48	50	52	54	55	53	58	61	67	77	85	94	101	108	119
49	52	55	56	57	58	60	64	68	77	86	94	102	110	122
50	54	58	60	61	62	65	69	70	81	88	94	104	113	126
51	56	60	63	66	67	71	72	73	84	90	99	109	117	130
52	58	62	66	69	70	74	75	76	87	92	102	111	120	135
53	60	64	69	73	74	78	79	80	88	94	104	114	122	143
54	62	67	70	73	77	81	82	83	91	97	104	111	117	147
55	64	69	71	74	78	84	85	86	94	102	109	115	125	152
56	66	70	74	77	81	87	88	89	99	106	114	122	132	157
57	69	73	77	80	84	91	95	97	104	111	118	127	138	161
58	71	75	79	82	86	91	100	102	109	116	123	132	142	166
59	73	77	81	84	88	94	105	107	115	122	127	136	145	171
60	75	79	83	86	90	97	107	113	120	126	133	141	151	172
61	77	81	85	88	92	99	109	113	122	129	138	146	156	177
62	79	83	87	90	94	102	110	113	120	127	136	144	154	
63	81	85	89	92	97	104	111	115	122	129	138	146	155	
64	83	87	91	94	99	107	115	119	126	133	142	150	159	
65	85	89	93	96	102	109	117	121	128	135	144	152	162	
66	87	91	95	98	104	111	119	123	130	137	145	153	163	
67	89	93	97	100	107	114	121	125	132	139	147	155	165	
68	91	95	99	102	109	116	123	127	134	141	149	157	167	
69	93	97	101	104	111	118	125	129	136	143	151	159	169	
70	95	99	103	106	113	120	127	131	138	145	153	161	171	
71	97	101	105	108	115	122	129	133	140	147	155	163	172	
72	99	103	107	110	117	124	131	135	142	149	157	165	174	
73	101	105	109	112	119	126	133	137	144	151	159	167	176	
74	103	107	111	114	121	128	135	139	146	153	161	169	178	
75	105	109	113	116	123	130	137	141	148	155	163	171	180	
76	107	111	115	118	125	132	139	143	150	157	165	173	182	
77	109	113	117	120	127	134	141	145	152	159	167	175	184	
78	111	115	119	122	129	136	143	147	154	161	169	177	186	
79	113	117	121	124	131	138	145	149	156	163	171	179	188	
80	115	119	123	126	133	140	147	151	158	165	173	181	190	
81	117	121	125	128	135	142	149	153	160	167	175	183	192	
82	119	123	127	130	137	144	151	155	162	169	177	185	194	
83	121	125	129	132	139	146	153	157	164	171	179	187	196	
84	123	127	131	134	141	148	155	159	166	173	181	189	198	
85	125	129	133	136	143	150	157	161	168	175	183	191	200	
86	127	131	135	138	145	152	159	163	170	177	185	193	202	
87	129	133	137	140	147	154	161	165	172	179	187	195	204	
88	131	135	139	142	149	156	163	167	174	181	189	197	206	
89	133	137	141	144	151	158	165	169	176	183	191	199	208	
90	135	139	143	146	153	160	167	171	178	185	193	201	210	
91	137	141	145	148	155	162	169	173	180	187	195	203	212	
92	139	143	147	150	157	164	171	175	182	189	197	205	214	
93	141	145	149	152	159	166	173	177	184	191	199	207	216	
94	143	147	151	154	161	168	175	179	186	193	201	209	218	
95	145	149	153	156	163	170	177	181	188	195	203	211	220	
96	147	151	155	158	165	172	179	183	190	197	205	213	222	
97	149	153	157	160	167	174	181	185	192	199	207	215	224	
98	151	155	159	162	169	176	183	187	194	201	209	217	226	
99	153	157	161	164	171	178	185	189	196	203	211	219	228	
100	155	159	163	166	173	180	187	191	198	205	213	221	230	
101	157	161	165	168	175	182	189	193	200	207	215	223	232	
102	159	163	167	170	177	184	191	195	202	209	217	225	234	
103	161	165	169	172	179	186	193	197	204	211	219	227	236	
104	163	167	171	174	181	188	195	199	206	213	221	229	238	
105	165	169	173	176	183	190	197	201	208	215	223	231	240	
106	167	171	175	178	185	192	199	203	210	217	225	233	242	
107	169	173	177	180	187	194	201	205	212	219	227	235	244	
108	171	175	179	182	189	196	203	207	214	221	229	237	246	
109	173	177	181	184	191	198	205	209	216	223	231	239	248	
110	175	179	183	186	193	200	207	211	218	225	233	241	250	

RIGHT HEIGHT AND WEIGHT FOR GIRLS

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.
39	34	35	36											
40	36	37	38											
41	38	39	40											
42	40	41	42	43										
43	42	43	44	44										
44	44	45	45	46										
45	46	47	47	48										
46	48	48	49	50	49									
47	49	49	50	51	51	53								
48	51	51	52	53	54									
49	53	53	54	55	56	57								
50	55	56	57	58	59	60		61						
51	57	58	59	60	61	62	63	64	65	66	67	68	69	70
52	59	60	61	62	63	64	65	66	67	68	69	70	71	72
53	61	62	63	64	65	66	67	68	69	70	71	72	73	74
54	63	64	65	66	67	68	69	70	71	72	73	74	75	76
55	65	66	67	68	69	70	71	72	73	74	75	76	77	78
56	67	68	69	70	71	72	73	74	75	76	77	78	79	80
57	69	70	71	72	73	74	75	76	77	78	79	80	81	82
58	71	72	73	74	75	76	77	78	79	80	81	82	83	84
59	73	74	75	76	77	78	79	80	81	82	83	84	85	86
60	75	76	77	78	79	80	81	82	83	84	85	86	87	88
61	77	78	79	80	81	82	83	84	85	86	87	88	89	90
62	79	80	81	82	83	84	85	86	87	88	89	90	91	92
63	81	82	83	84	85	86	87	88	89	90	91	92	93	94
64	83	84	85	86	87	88	89	90	91	92	93	94	95	96
65	85	86	87	88	89	90	91	92	93	94	95	96	97	98
66	87	88	89	90	91	92	93	94	95	96	97	98	99	100
67	89	90	91	92	93	94	95	96	97	98	99	100	101	102
68	91	92	93	94	95	96	97	98	99	100	101	102	103	104
69	93	94	95	96	97	98	99	100	101	102	103	104	105	106
70	95	96	97	98	99	100	101	102	103	104	105	106	107	108
71	97	98	99	100	101	102	103	104	105	106	107	108	109	110
72	99	100	101	102	103	104	105	106	107	108	109	110	111	112
	101	102	103	104	105	106	107	108	109	110	111	112	113	114
	103	104	105	106	107	108	109	110	111	112	113	114	115	116
	105	106	107	108	109	110	111	112	113	114	115	116	117	118
	107	108	109	110	111	112	113	114	115	116	117	118	119	120
	109	110	111	112	113	114	115	116	117	118	119	120	121	122
	111	112	113	114	115	116	117	118	119	120	121	122	123	124
	113	114	115	116	117	118	119	120	121	122	123	124	125	126
	115	116	117	118	119	120	121	122	123	124	125	126	127	128
	117	118	119	120	121	122	123	124	125	126	127	128	129	130
	119	120	121	122	123	124	125	126	127	128	129	130	131	132
	121	122	123	124	125	126	127	128	129	130	131	132	133	134
	123	124	125	126	127	128	129	130	131	132	133	134	135	136
	125	126	127	128	129	130	131	132	133	134	135	136	137	138
	127	128	129	130	131	132	133	134	135	136	137	138	139	140
	129	130	131	132	133	134	135	136	137	138	139	140	141	142
	131	132	133	134	135	136	137	138	139	140	141	142	143	144
	133	134	135	136	137	138	139	140	141	142	143	144	145	146
	135	136	137	138	139	140	141	142	143	144	145	146	147	148
	137	138	139	140	141	142	143	144	145	146	147	148	149	150

Height and weight to be taken in house clothes without shoes. Weigh on the same day each month about the same hour of the day. Age, the nearest birthday. Prepared for The Bureau of Education by The Child Health Organization of America. (Tables by Dr. Thomas D. Wood.)

CHAPTER XIX

DIET FOR THE SCHOOL CHILD

The Diet arranged and endorsed by the Bureau of Education, Department of the Interior, U. S. A.

GOOD FOOD HABITS

The child is the adult of tomorrow. The kind of food a child has today determines to a considerable extent the fitness of the future citizen. Those who direct the feeding of the child have a responsibility which cannot be overlooked. Good food habits should start today. Tomorrow may be too late.

1. Meals should be given at regular times.—There should be regularly appointed hours for eating. Do not allow children to eat except at these hours unless ordered by a physician. If the child gets very hungry two or three hours before time for the next meal, give him a slice of bread and butter. Do not give a child candy, fruit, nuts, cake and cookies between meals.

2. Plenty of water should be given.—Children as well as adults should drink plenty of water between meals. Water will often satisfy the craving which many mistake for hunger. Food

should not be washed down with water during meals.

3. Children often have to be taught to like things which are good for them.—Be patient, but firm, in teaching a child to like new foods. Begin by giving a small amount of new food; give but one new food at a time, and repeat it regularly until the child learns to like it.

4. Children should not be forced to eat when not hungry.—Forced feeding causes more harm than light eating for a few days. If the appetite does not return, consult a physician.

5. They should be happy while eating.—Let the mealtime be a joyous occasion, without undue excitement just before, during, or after eating.

6. Plenty of time should be allowed for meals.—Insist on thorough chewing so that the stomach may not be overtaxed.

7. Dirt is dangerous. Children should have clean hands and faces while eating; they should sit down to a clean table and eat in an orderly manner. Flies should not be allowed to alight on the food either before or during mealtime.

THE CHILD'S FOOD

A child should not be allowed to make his entire meal from one or two articles; he needs a variety of foods to supply all kinds of growing material. He can not develop normally unless he has this variety. Every day the diet of the

child should contain some of each of the following types of foods:

1. *Milk*.— This is the best and most important food for growing children. No other food can take its place. Children over five years of age should have three to four cups a day. Milk should not be given very cold. Warm milk is more easily digested. Oftentimes milk can be taken warm when it causes distress if taken cold. If children rebel against drinking milk alone, it may be given in the form of cocoa, milk soups, custards, etc. Where it is impossible to get fresh milk, dried milk or evaporated milk may be used. If dried skimmed milk is given, give the child plenty of vegetables and, if possible, some cream or butter. Tea and coffee should not be given to growing children at all.

The first food a family should buy is milk.

The last food to be dispensed with is milk.

—*Dairy Bureau of Massachusetts.*

2. *Eggs, Fish, Fowl, Meat, or Their Equivalents*.— Where plenty of milk and an egg a day are included in the diet of the child, very little meat need be given before the seventh year. Allow not more than two ounces of meat daily for a child from seven to ten years; three ounces daily from ten to fourteen years. The broth from stews may be given on vegetables and bread. Where meat and eggs can not be purchased because of cost and scarcity, the diet should con-

tain a quart of milk, with pea or bean soups, spinach and other green vegetables, oatmeal, and dried fruits. Vegetables and fruits are also excellent sources of iron and other elements necessary for growth, and, combined with milk, will supply food value more than equal to meat.

3. *Bread, Cereals, and Other Grain Products.* — These should furnish at least one-third of the food required by the child. The most nourishing ones should be included in the diet; cereals and flours with some of the outside of the grain are more nourishing than the refined flours. Hence, entire wheat flour and brown rice are better than white flour and white rice. They also help to prevent constipation.

The following list gives the cereals and flours in the order of the amount of nourishment which they contain, and their rating, based upon the proportion of the chief elements in the food which are necessary for growth:

Oatmeal	2,500	Macaroni	1,350
Force	2,300	Cream of Wheat	1,350
Shreaded wheat	2,200	Farina	1,350
Graham flour	2,200	White wheat flour	1,250
Barley	1,450	Hominy	1,150
Rye flour	1,450	Rice (white)	1,150
Cornmeal	1,350	Corn flakes	1,100

To reduce this to a cost basis, divide the rating given above by the cost per pound and compare the food value with the money spent. Oatmeal at eight cents a pound gives 310 food units for

every cent spent. Hominy at seven cents a pound gives 164 food units for every cent spent. Then, oatmeal is much more economical than hominy. For older children (over ten years) cereals and breads may be varied and the food value increased by the addition of dried fruits.

Dates at twenty-five cents a pound are cheaper than fresh apples at five cents a pound and make a valuable addition to cooked cereal. (To prepare dates, wash, chop in small pieces, and stir into any cereal.) Stewed prunes may be used in the same way. They are especially good with hominy and other white cereals. Mixed cereals offer a great variety of flavors. Two or three kinds may be cooked together.

Cereals should be thoroughly cooked. If children do not like them, it is usually because they have not been properly cooked and served. They need long, slow cooking over boiling water or in a fireless cooker. The cereal may be cooked the night before, and reheated in the morning in a double boiler, or by setting the dish in a pan of hot water.

Directions for cooking cereals: Stir the cereal into the right amount of boiling salted water, and cook over direct heat until the cereal thickens, stirring constantly. Then set into boiling water or the fireless cooker and cook as long as directed without further stirring; proportions are as follows: 1 cup of corn meal, 6 cups water, 1 to 2

teaspoonfuls salt and cook 3 hours; 1 cup wheat preparations, 4 to 6 cups water, 1 to 2 teaspoonfuls salt and cook 1 hour; 1 cup hominy, 4 cups water, 1 teaspoonful salt and cook 3 hours; 1 cup rolled oats, 2 to 2½ cups water, one-half teaspoonful salt and cook 2 to 3 hours.

Uncooked or "dry" cereals may be given occasionally, if cost can be disregarded, and with milk and fruit make an agreeable supper dish. It should be remembered that it takes two or three times as much of these dry cereals by volume to supply the same amount of food as of cooked cereal.

Cereals should be served with milk and not more than one teaspoonful of sugar to a saucerful of cereal. For those who take them well without sugar, it may be omitted altogether. Flours and cereals may be made into bread, puddings, soups, cookies, etc.

4. *Vegetables*.—These are a very essential part of the diet. They are especially necessary if milk is lacking. There is little danger of eating too much of the right kind of vegetables in a well-balanced diet. They are very important in helping to guard against constipation. Oftentimes hunger is due to the absence of vegetables in the meals, and children who crave more food find their appetite satisfied where vegetables are given regularly. They give volume or bulk to the food. Potatoes, baked, boiled or mashed,

should be given practically every day. They are economical even at five cents a pound. Other valuable vegetables are dried and fresh peas and beans, spinach, onions, string beans, squash, cauliflower, asparagus, carrots, stewed celery, and for older children parsnips, oyster plant, and turnips; and in summer all kinds of "pot greens" such as beet tops, turnip tops, dandelions, chard, and cooked lettuce. Dried and canned vegetables if of good quality may also be given in winter. Almost all vegetables except cabbage, cucumbers, and corn may be used freely after the fifth year; corn should not be given before the twelfth year. In soups and stews more vegetables and less meat should be used than is common practice. Meat should be used chiefly for its effect in adding a flavoring.

Much valuable food material dissolves in the water in which vegetables are cooked. This decreases their value as food. So far as possible, this water should be used in making meat gravies and soups. Vegetables should be cooked only long enough to become tender.

5. *Fruit*.—There should be some fruit in the diet every day. Where fresh fruit is not possible, use dried fruit. Fresh fruit should be given only in season; it should be very ripe, but not decomposed. Bananas are not ripe until the skins have brown spots. If served before this stage, they should be baked or boiled. They

should not be given raw before the tenth year. Jams and preserves should be avoided.

6. *Sweets*.—There is great danger of children getting too much sugar and spoiling the appetite and the digestion. Children should not have, all told, more than the following amounts:

5 to 7 years.....	1 tablespoonful daily
7 to 12 years.....	2 tablespoonfuls daily

Sugar is less likely to be harmful when taken in cocoa, rice, or other simple puddings, custards, or in dried fruits, fresh fruits, and vegetables. Molasses has a higher food value than sugar and its frequent use should be encouraged. Whatever sweets are given should be at the end of a meal; never between meals or at the beginning of a meal. They spoil the appetite for other necessary food.

7. *Fat*.—This is an essential for growing children. Milk fat (cream and butter) is the most important kind. Children should, if possible, have unskimmed milk. If the cream is removed from their milk, they should have plenty of butter; or butter substitutes, such as nut butter or oleomargarine, may be used. Vegetable oils may be given to increase the energy of growing children; corn, olive, cottonseed, and peanut oils are all good. Fat is more easily digested uncooked. Children should not have cooked fat except bacon. All fried foods should be avoided.

PLANNING THE MEALS

The meals of a school child should be planned to give enough variety and provide all the growing material needed. The following suggestions will help to provide well-balanced meals for school children:

1. Breakfast should contain milk, bread and butter, and when possible, in addition, cereal, fruit, or egg.

Milk may be taken partly with a cereal, the rest drunk plain or with cocoa.

Bread should be stale or toasted (whole wheat, oatmeal, cornmeal, rye, barley, or white bread or any other simple bread).

Butter may be oleomargarine, nut margarine, or some other butter substitute; it should always be given freely if cream has been removed from the milk used.

The best cereals are oatmeal, Wheatena, Petti-john, cornmeal, samp, hominy, rice, farina, Cream of Wheat.

Fruit may be orange, stewed or fresh apple, ripe pear or peach, thoroughly ripe or cooked banana, stewed dried fruit such as dates, figs, prunes, apples, or peaches.

The fresh fruits in season are to be preferred where it is possible to obtain them; they are usually expensive, however, and one often gets much better return for the money in dried fruit.

All fruits except orange should be cooked for children under seven years old.

Eggs may be given soft-boiled, poached, scrambled (plain or in milk) and omelette. Fried eggs should not be given.

2. Dinner, or the heaviest meal, should preferably be in the middle of the day. This is not feasible when the child must hurry home from school, eat rapidly and rush back; nor when the child must carry his lunch to school; nor when the mother can prepare but one dinner a day and the father must have his at night. For a light midday meal, give a vegetable soup, bread and butter, a simple dessert or the meals hereafter indicated for supper. An ideal dinner should consist of soup, meats or eggs, vegetables, bread and butter and dessert.

Clear meat soups or broths have very little nourishment. Soups for children should be made from dried peas or beans, or with fresh vegetables, such as potato, spinach, carrots, peas and onions; such soups with the addition of rice or barley and a small amount of milk make a very nourishing dish.

Meat should be given but once a day, and the quantity should not be large. Lean beef, mutton, lamb, chicken, and such fish as cod, haddock, and halibut, but not salt or dried fish. As a rule cold meat should be avoided by young children because it is rarely chewed properly.

Vegetables should form a large part of the diet especially in summer. A list of those available has already been given. Bread and butter should always be given.

With plenty of bread and butter and vegetables, dessert is not essential. When given, it should always be plain and simple. The most wholesome desserts are cereal puddings with fruit, such as rice, oatmeal, baked Indian or bread pudding, plain cookies, cake and cocoa or fruit custards, junkets, ice cream or ices, stewed, dry or fresh fruit, sliced orange or sweet chocolate. Suggested dinner combinations are given in later pages.

3. The supper, when the hearty meal is given at midday, should be a simpler meal. Give dishes made of milk, eggs, strained vegetables, cereals, and fruit, rather than meat, whole vegetables, and sweet desserts.

Some suggestions for supper are as follows:
Bread and milk, baked potato, stewed fruit.

Cereal and milk, bread and butter, baked banana.

Poached egg on toast, baked potato, bread and butter, apple sauce, and ginger bread.

4. The child needs at least three good meals a day. If he has to carry a luncheon to school, it should be a substantial one which will give him nourishment enough to keep him from getting exhausted during the afternoon. The hot midday

meal is to be preferred; but it is better to carry a well-balanced luncheon than to hurry home, bolt half the dinner for fear of being late, and get exhausted before the end of the day. It is desirable to have hot soup or cocoa at school; it is then easy to supplement this. If, however, he must carry the whole luncheon, it must be a nutritious as well as an appetizing one.

Suggestions for a basket luncheon: The most feasible are sandwiches, dessert, fruit, and a bottle of milk.

For sandwiches use the most nourishing kinds of bread, such as whole wheat, oatmeal, brown, raisin, or nut bread. Appetizing fillings may be of egg, chopped meat, cheese (American), fresh cottage cheese plain or combined with dried fruits, sliced tomatoes, chopped vegetables such as beets or lettuce, jelly, or peanut butter and chopped raisins or dates. Where possible, a baked custard adds variety. If fruit is not included in the filling, a small glass jar of some stewed fruit or apple sauce may be added, some fresh ripe fruit, or a few dates.

For dessert plain cookies, ginger cookies or those with cheese, date cookies, sponge cake, gingerbread, or sweet chocolate. It is easy to get a small jar with a tight screw top for sauce, puddings, and custards and to get a bottle for carrying milk.

SAMPLE SUMMER DIET FOR A WEEK FOR CHILDREN 7 TO 12 YEARS

BREAKFAST	DINNER	SUPPER
Oatmeal, $\frac{1}{2}$ to $\frac{3}{4}$ cup, with milk. Stewed fruit, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices. Milk to drink, 1 glass.	Lamb stew, with vegetables, small portion. Squash or string beans, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices. Bread pudding, 2 tablespoonfuls.	Potato soup, with milk, 1 cup. Poached egg on toast. Brown bread and butter, 2 to 3 slices. Stewed prunes, 4 to 5. Milk to drink, 1 glass.
Force or cornflakes, 1 cup with milk. Egg. Brown bread and butter, 2 to 3 slices. Milk to drink, 1 glass.	Chicken with rice, small portion. Mashed potato, 2 to 3 tablespoonfuls. Dandelion greens or boiled onions, 2 to 3 tablespoonfuls. Stewed fruit, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices.	Spinach soup with milk, 1 cup. Cornbread & syrup, 2 to 3 pieces. Cottage cheese, 1 level tablespoonful. Ginger cookies, 1.
Hominy, $\frac{1}{2}$ to $\frac{3}{4}$ cup, with milk. Toast and butter, 2 to 3 slices. Baked banana, 1. Milk to drink, 1 glass.	Bacon, 1 slice. Poached egg and spinach. Spaghetti with tomatoes, 2 to 3 tablespoonfuls. Green peas or string beans, 2 to 3 tablespoonfuls. Bread and butter, 1 to 2 slices.	Cornflakes, 1 to 2 cups, with milk. Puree of lima beans, $\frac{2}{3}$ cup. Ginger cookies, 1 to 2. Milk to drink, 1 glass.
Cornmeal, $\frac{1}{2}$ to $\frac{3}{4}$ cup, with syrup. Scrambled egg, 1. Bread and butter, 2 to 3 slices. Milk to drink, 1 glass.	Rice pudding, 1 to 2 tablespoonfuls. Hamburg steak, 1 small ball. Stewed potatoes, 2 to 3 tablespoonfuls. New beets and beet-top greens, 2 to 3 tablespoonfuls. Stewed fruit, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices.	Milk toast or rice, $\frac{1}{2}$ cup with milk. Baked potato, 1. Bread and butter, 2 to 3 slices. Milk to drink, 1 glass.

BREAKFAST	DINNER	SUPPER
Shredded wheat, 1 with milk. Cornbread and butter, 2 pieces. Apple sauce or stewed pears, 2 to 3 tablespoonfuls. Milk to drink, 1 glass.	Fish or clam chowder, $\frac{3}{4}$ cup, or egg. New beets or spinach, 2 to 3 tablespoonfuls. Boiled potato. Bread and butter, 2 to 3 slices. Custard or junket, $\frac{1}{2}$ cup.	Oatmeal soup, 1 cup. Squash, chard, or carrots, 2 to 3 tablespoonfuls. Stewed fruit, 2 to 4 tablespoonfuls. Bread and butter, 2 slices. Milk to drink, 1 glass. Plain cookies, 1.
Force or cornflakes, 1 to 2 cups, with milk. Poached egg on toast. Brown bread and butter, 2 to 3 slices. Milk to drink, 1 glass.	Lamb hash or veal cutlet, small portion. String beans, 2 tablespoonfuls. Baked potato. Bread and butter, 2 to 3 slices. Apple sauce, 2 to 4 tablespoonfuls.	Rice and milk, $\frac{2}{3}$ cup. Cornbread and butter, 2 slices. Ginger cookies, 1 to 2. Milk to drink, 1 glass.
Rice, $\frac{1}{2}$ cup with milk. Bread and butter, 2 to 3 slices. Stewed fruit, 2 to 3 tablespoonfuls. Milk to drink, 1 glass.	Dried pea or bean soup, 1 cup. Baked potato. Bread and butter, 2 to 3 slices. Lima beans or new beets, 2 tablespoonfuls. Ice cream or fruit sherbet, 2 tablespoonfuls.	Baked potato, 1. Poached egg on toast, 1. Stewed prunes, 4 to 5. Plain cookies, 1 to 2. Milk, 1 glass.

For the younger children, use more milk and less meat.

SAMPLE WINTER DIET FOR A WEEK FOR CHILDREN 7 TO 12 YEARS

BREAKFAST	DINNER	SUPPER
Oatmeal, $\frac{2}{3}$ cup, with milk. Bread and butter, 2 to 3 slices. Baked apple, 1. Milk to drink, 1 glass.	Roast lamb, small slice; baked potatoes. Beets, onions, or oyster plant, 2 to 3 tablespoonfuls. Rice pudding, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices.	Scrambled egg, 1. Bread and butter, 2 to 3 slices. Oatmeal cookies, 1 to 2. Milk to drink, 1 glass.

BREAKFAST	DINNER	SUPPER
Hominy, $\frac{2}{3}$ cup with milk. Bread and butter, 2 to 3 slices. Bacon, 1 slice. Cocoa with milk, 1 cup.	Vegetable soup with carrots, beans, onions, 1 cup. Spinach with poached egg, 2 to 3 tablespoonfuls. Cornbread and butter, 2 to 3 slices. Dates, 4 to 5.	Baked potato, 1. Bread and butter, 2 to 3 slices. Stewed apricots, 2 to 3 tablespoonfuls. Cottage cheese, 1 tablespoonful.
Cornmeal, $\frac{1}{2}$ to $\frac{2}{3}$ cup, with milk. Toast and butter, 2 to 3 slices. Apple sauce, 2 to 4 tablespoonfuls. Milk to drink, 1 glass.	Rice and meat loaf, small portion. Stewed celery or cauliflower, 2 to 3 tablespoonfuls. Bread and butter, 2 to 3 slices. Baked Indian pudding, 2 tablespoonfuls.	Rice and milk, $\frac{1}{2}$ cup. Baked banana, 1. Fruit cookies, 1 to 2. Bread and butter, 3 to 4 slices.
Oatmeal, $\frac{2}{3}$ cup with milk. Bread and butter, 2 to 3 slices. Stewed prunes or figs, 3 to 4. Cocoa with milk, 1 glass.	Beef stew with vegetables, small portion. Bread and butter, 3 to 4 slices. Rice pudding or custard, 2 to 3 tablespoonfuls.	Cornbread & syrup, 2 to 3 pieces. Soft egg. Bread, 2 to 3 slices, and peanut butter $\frac{1}{2}$ tablespoonful. Cocoa with milk, 1 glass.
Force or cornflakes, 1 to 2 cups, and milk. Bread and butter, 2 to 3 slices. Soft egg and bacon, 1. Milk to drink, 1 glass.	Chicken, small slice; potato soup with milk, 2 to 3 cups. Creamed carrots or onions, 2 to 3 tablespoonfuls. Ginger bread and thin cream, 1 small piece. Bread and butter, 2 to 3 slices.	Milk toast, 2 to 3 slices. Cottage cheese, 1 tablespoonful. Stewed prunes, 4 to 5. Cookies; milk to drink, 1 glass.
Pettijohn or malt breakfast food, $\frac{2}{3}$ cup with milk. Bread and butter, 2 to 3 slices. Soft egg; milk to drink, 1 glass.	Creamed or fresh broiled fish, small portion. Baked sweet potato, 1. Bread and butter, 2 to 3 slices. Baked apple, 1.	Spinach or bean soup, 1 cup. Baked potato, 1. Cornbread and butter, 2 pieces. Milk to drink, 1 glass.

BREAKFAST	DINNER	SUPPER
Cornmeal, $\frac{2}{3}$ cup, and milk. Toast and butter, 2 to 3 slices. Stewed dried peaches, 2 to 3 tablespoonfuls. Cocoa with milk, 1 cup.	Lamb stew with vegetables, small portion. Boiled potato, 1. Bread or rice pud- ding, 2 to 3 table- spoonfuls. Bread and butter, 2 to 3 slices.	Celery soup with milk, 1 cup. Bread and butter, 2 to 3 slices. Custard or junket, $\frac{1}{2}$ cup. Ginger cookies, 1 to 2; milk to drink, 1 glass.

Toward spring, when eggs are abundant, they may be given more frequently, replacing some meat and milk. Cottage cheese should be made at home or the best grade purchased and used only when fresh,

CHAPTER XX

THE COMMON ILLS

Constipation.—Constipation in older children is usually the result of failure to form proper habits when they were young. An effort should be made each day to establish a voluntary movement of the bowels directly after breakfast. Children quickly become preoccupied with their play and often repress a natural desire to evacuate the bowels. A certain time should be taken each morning with regularity and the child taught to remain fifteen or twenty minutes, if necessary, until the movement has been accomplished. The habit should be firmly established.

The next common cause of constipation is error in diet. During the run-about age, from the second to the fifth year, constipation commonly results from drinking too much milk. Twenty-four to thirty-two ounces a day are enough. This is three or four cups and should be drunk at mealtime or taken on cereal or other foods. If the cream is too rich, from Jersey or Guernsey cows, part, or if necessary, all of it, should be removed temporarily as constipation is very apt to result, and the breath become foul, with hard and

light colored stools. From the 2nd to the 5th year the following foods should form part of the diet: peas, string beans, spinach, asparagus, cauliflower and such cereals as cracked wheat, oatmeal, hominy and cornmeal, bran biscuits, oatmeal crackers, graham wafers, zwieback, whole wheaten bread, stewed rhubarb, stewed or baked apples, stewed prunes, custards, cornstarch puddings, junket—all of which are laxative foods. Malted milk is a laxative drink. Four or five teaspoonfuls of malted milk in eight ounces of water can be given with the meal in place of plain milk. To be more palatable it can be flavored with a teaspoonful of cocoa. After the second year the child will do better on three meals a day at regular mealtimes. This aids digestion and gives the stomach proper time to rest.

After the fifth year add to the diet such laxative foods as: dates, figs, raw and cooked fruits. An apple, orange or little stewed fruit at bedtime is a help. Don't allow eating between meals. If you do not have the evening meal before six-thirty or seven let the child have something regularly after school, in the shape of a piece of bread and butter, glass of milk, apple, cookie or cracker. Don't give sweets or candy but something light and wholesome. Candy invariably disturbs digestion, eaten between meals and brings on constipation. The small amount that

should be allowed should be taken with or immediately after the meal. Four or five glasses of water must be drunk between meals during the day.

Where constipation persists, give a tablespoonful of one of the mineral oils at bedtime. None of the oil is absorbed; it acts as a lubricant, and it is not necessary to keep giving large doses as in the case of laxatives. Raisins, dates and figs, a pound of each, with one-half ounce of senna leaves put through the meat-grinder three times is a splendid remedy for constipation. This should be kept in a glass-covered jar and given at bedtime, the dose from a small teaspoonful up, given in accordance with the results, is excellent for children and adults.

Diarrhea.—The most frequent cause of diarrhea in children is the eating of overripe or under-ripe fruit, or food which has started to decompose because left too long on ice, such as milk, fish or chicken. Ice cream given to a child who has become overheated, will cause diarrhea, as will swimming too long or wading in cold water.

Diarrhea is one of the first signs of typhoid fever. And the same conditions which produce Summer Complaint in babies will bring on diarrhea in older children, harmful bacteria getting into the intestines from decomposed food.

In every case of diarrhea give at once a table-

spoonful of castor oil and after the bowels are emptied give an enema of warm water to which you have added two teaspoonfuls of bicarbonate of soda to each quart. Thoroughly flush out the bowels with this to get out all the poison. Give skimmed milk to which you have added two teaspoonfuls of lime water to each glass. After the bowels are thoroughly emptied give barley water or rice water, tapioca or cornstarch pudding. Don't give meat or meat broths until the diarrhea has stopped and the temperature returned to normal, which is 98° or 99° F. Allow plenty of water to drink but it should not be very cold. When the diarrhea has disappeared and the temperature is normal return gradually to the regular diet.

To ease the pain, put a hot flannel over the abdomen, wrung out of very hot water, and give sips of peppermint water. After the bowels are emptied give milk of magnesia, one-half teaspoonful for the younger children and one teaspoonful for older children, two hours after the noon meal, for three or four days. This is of great benefit in aiding the system to return to normal after such an attack.

Indigestion.—Children who are pale and listless, complaining of headache or discomfort about the stomach, are usually overfed, or supplied with some article of food which habitually disagrees with them. Children confined in rooms

deficient in oxygen are prone to have indigestion, and the nervous child who eats rapidly, swallowing half-chewed food, invariably suffers from indigestion. The stools often show particles of undigested food.

Children should not come to their meals overtired. They should stop work or play long enough to get calmed down before eating and should remain quiet for at least half an hour afterward. It is a bad practice to keep constantly correcting children as to their table manners or other faults at mealtime. Let this be done some other time so as not to upset the digestion.

When you start to correct indigestion, begin with the errors in hygiene, then look to the food. Fried foods cause much indigestion and should never be given children. The fact that they do form a large part of the diet in many families accounts for a tremendous amount of malnutrition and a long train of ills.

If you are giving milk too rich in cream, remove part of the cream. Allow meat only three times a week, and never fried. If the child does not chew his food properly, cut it up finely until he learns to chew it properly. Don't give meat soups the same day you give meat, and skim the fat off the broths.

Eggs are not taken well by some children and if indigestion persists remove them to see if they

are the possible cause. Soups made from peas and beans, and if eggs are not disturbing, cod-dled eggs, junkets and custards, buttermilk or Dutch cheese, all are very valuable in the diet. Omit in cases of indigestion all those foods specially referred to as undesirable in the chapter, *The Formative Years*.

A child taken with a sudden attack of indigestion may be given one-quarter of a teaspoonful of bi-carbonate of soda in a cup of very warm water. Or, one or two teaspoonfuls of milk of magnesia, with sips of hot peppermint water. Put hot cloths over the abdomen and empty the bowels. The soda or magnesia and peppermint are also a relief for hiccups.

If the child has eaten something very wrong, like green fruit, and become suddenly acutely ill, pale, with cold hands and feet, prostration and severe pain in the stomach, and this comes on shortly after eating, you had better try to get it out of the stomach at once. A teaspoonful of ipecac given every five or ten minutes until the child vomits, or a half teaspoonful of mustard in a half cup of warm water, will cause vomiting. As soon as the stomach is empty give castor oil or a large dose of milk of magnesia to clean out the bowels.

Poisoning.—In case of swallowing poison or an overdose of medicine, send for the physician at once and make the child vomit immediately by

the directions just given. If, on the other hand, carbolic acid is swallowed, have the child drink at once a half cup of water in which a teaspoonful of bi-carbonate of soda is dissolved, and then pour down the throat as much olive oil or sweet oil as you can get down. The oil is to ease the burning and if you haven't any kind of oil take unsalted lard or butter. If the child is given an overdose of laudanum or paragoric, give a strong cup of coffee and put the feet in a strong mustard bath. Make every effort to keep the child from going to sleep.

Injuries.—Every family should be provided with a bottle of tincture of iodine. If the child falls down and cuts or scrapes off the skin, wash the wound clean from every particle of dirt. Use peroxide or boric acid solution in very warm water and after thoroughly cleansing, paint the wound with tincture of iodine on a little swab of clean cotton or gauze. This will smart but it will prevent infection which may have gotten in through the dirt. Remember, lockjaw germs live in dirt, as do all the germs of blood poisoning. If the wound does get infected and the skin around it becomes very red and painful get your physician at once. Until he arrives follow these directions: Dissolve a tablespoonful of boric acid crystals in a quart of water, boil for five minutes. Wring out of this *perfectly clean pieces of gauze or linen* as hot as can be borne and lay

them on thick over the affected part. Cover with a folded towel to keep the application hot and change these applications every twenty minutes. Don't fail to send for your physician at once.

For burns from steam, hot water, metal or fire, apply at once oil of any kind. If you haven't oil use unsalted lard or butter and spread thickly over the burned area, then cover this with corn-starch or flour to keep out the air. As soon as possible get equal parts of linseed oil and lime water, shake well and pour all over the burned part. Cover well with gauze or soft clean linen and outside of this put oiled silk or rubber tissue, which you can procure at the druggist's, to keep the burned parts protected from the air. Bandage loosely. Change this dressing each day. Blisters will form and a needle, sterilized by holding over a flame, must be used to prick these open to allow the water to escape.

Boils.—Boils are more frequent in the delicate, poorly nourished infant and child than in fat, healthy children. They appear on any part of the body, head and scalp. They have to be opened and the infection allowed to escape. If a boil is not opened but allowed to develop until it breaks, the system steadily absorbs the poison from the infection and pus. When the boil is opened, and this must be done by the physician, and the infection is drained out, the whole problem is to prevent this pus from getting on the

skin where it will produce other boils. Linen or gauze packs, wrung out of hot boric acid solution, already described in this chapter, applied after the boil has been opened, helps the infection to drain out. For children, fifteen grains of boric acid thoroughly mixed in an ounce of sterile vaseline and covered over the region surrounding the boil for quite a large area, will prevent the infection from spreading and other boils from developing.

Children who are subject to boils derive great benefit from yeast. A child of three can take one-sixth of a compressed yeast cake stirred in a little warm water or milk sweetened with sugar, a half hour before eating, three times a day. After the third year one-quarter of a cake, and grown children and adults a full cake. This continued for several weeks will in many cases give permanent relief.

Common Rashes.—Rashes on the skin may be from internal or external causes. When a rash appears the temperature should be taken and if there is fever the doctor should be notified, as it may be the beginning of a contagious disease. Contagious diseases and the more serious forms of rashes are discussed in the volume *Diseases of Infancy and Childhood*.

Insect bites cause great irritation at times and there is danger of poisoning by scratching dirt into the bite. A teaspoonful of bi-carbonate of

soda dissolved in a glass of warm water patted on the spots with a soft, clean cloth, which can also be saturated and laid over the bites, is very soothing. One-quarter to one-half teaspoonful of cream of tartar in a glass of lemonade is a cooling drink for the blood when the skin is thus irritated.

Ivy Poisoning.—This develops in a few hours after the skin has come in contact with the plant. The skin swells, reddens and is hot to the touch. Tiny blisters form. The swelling is sometimes so great that the eyes are closed. Use a wet dressing of fluid extract of *Grindelia Robusta*, which you can procure from your druggist. Put one teaspoonful in a pint of water and apply with a soft piece of old linen. Another good way to relieve the itching is to give a tub bath of very warm water, into which you have put one-half pound of crude sulphur. Give this twice daily. When the acute inflammation has passed, annoint the parts with a solution of five per cent boric acid in rosewater ointment.

Hives.—Hives are caused by the irritating effect of some food which produces indigestion. This subject is discussed in detail in Volume III. As soon as hives appear watch for some food that is causing the trouble, such as oatmeal, eggs, strawberries, tomatoes or buckwheat and eliminate it from the diet. Give several doses of milk of magnesia, or rhubarb and soda, which you

can easily procure. Cut down the diet to broth and gruels, omitting milk. Make a solution of one teaspoonful of baking soda in a glass of warm water and lay pieces of cloth wrung out of this on the itching parts.

Ring-worm.—This appears on any part of the body in round slightly raised areas covered with gray-white scales and the hair which grows on the skin becomes broken off. This infection spreads readily. It can be acquired from other people, by using their towels, and also from cats and dogs. If on the scalp, the hair must be clipped; the scalp or other parts well washed with tincture of green soap, then thoroughly rinsed and the areas painted, covering well over the edge with tincture of iodine. In two or three days the spots must again be painted and this treatment repeated until they dry up and disappear.

Frost-bite.—If the hands or feet are frost-bitten keep them away from the fire. Put them in very cold water constantly rubbing them. As soon as the circulation returns gradually add warm water. Serious frost-bites should always receive your physician's attention. If the skin peels off and is sensitive put on a little zinc oxide ointment and protect it with a piece of gauze.

Itch.—This usually begins between the fingers and toes. It is caused by a parasite that bur-

rows under the skin. It is often acquired at school. By scratching it is quickly spread to other parts. Apply a sulphur ointment which your druggist can supply, cover thickly and bandage. Don't allow anyone else to use the towels, and keep up the treatment for a week. Then take a hot bath, scrubbing the body well with tincture of green soap.

Lice.—These are sometimes acquired at school and can be gotten rid of by clipping the hair short and saturating the scalp and hair with kerosene, leaving it on overnight and tying something around the head. Thoroughly shampoo in the morning with soap and water. Instead of kerosene, tincture of larkspur can be used, or strong vinegar. Repeat the treatment every second day, combing the hair with a fine tooth comb, until the trouble has disappeared. If the hair is not cut short a longer time is required to get rid of the nits, which the lice cement to the hair.

Earache.—Earache always demands your physician's attention as an infection may have gotten into the middle ear and there may be pus behind the drum membrane. An infection is often pushed up through the eustachian tube into the middle ear by holding both nostrils closed when blowing the nose. Teach your child to blow the nose by compressing one nostril at a time and gently blowing through the other. Enlarged adenoids and infected tonsils are often followed by

diseased middle ear. Irrigate the ear with very warm water in the fountain syringe as described later or use an ear syringe. A five per cent solution of carbolic acid in an ounce of glycerine, two or three drops being put into the ear, keeping the drops in by lying on the other side and putting in a wad of cotton, will oftentimes check an inflammation of the middle ear in the beginning.

If any foreign substance gets into the ear such as a bug or bean, or if hard chunks of wax form, the first thing to do is to pour in a little warm sweet oil, letting it remain to soften the obstruction, and then lie on that side of the head to try to induce it to come out. If this fails take the child to the doctor. If this is impossible, fill the fountain syringe with warm water. Boil the tip before using, and raising the syringe two and a half or three feet above the child's head, irrigate the ear by letting the water run in and out, the head being held sidewise over a basin. Never stick anything into the ear such as a hairpin or toothpick.

Eyes.—When the eyes become inflamed or reddened they should be washed out with a solution of boric acid made in the way I have already instructed and used warm, dropped in with an eye-dropper which you first thoroughly rinse in boiling water, or squeezed in with perfectly clean hands and a swab of sterile cotton, holding the lids gently open. Two or three drops

of a fifteen per cent solution of argyrol instilled in both eyes twice daily will usually give prompt relief from ordinary infection.

Cinders, dirt or fine pieces of steel get into the eyes and should be removed at once as these may set up a violent inflammation or may scratch the cornea, ulcers developing, impairing, and in many cases causing complete loss of eyesight. Wash the hands thoroughly, roll the upper lid back over the finger or a pencil and you will generally find the foreign particle imbedded beneath the upper lid. This can easily be picked off with a little piece of cotton wound around a toothpick. Wash all particles of dirt out of the eye with a boric acid solution. If you have argyrol put a drop or two into the eye to prevent any possibility of infection. Because argyrol is very dark and stains for a moment or two do not think that it injures the eye.

The cross-eyed child should be put in the hands of the best oculist that can be secured, and the eyes straightened by means of glasses, or an operation, if necessary. This should be done in the child's second or third year and it is sometimes done even earlier.

The near-sighted child should be properly fitted with glasses. Near-sightedness is early detected as the child will hold objects abnormally close to the eyes to see them and will complain of headaches.

Sties are common and come on both lids. To remove them soak a piece of sterile gauze or perfectly clean handkerchief in warm lead-water and lay over the lids covering this over with a piece of oiled silk or soft folded cloth and bind with a handkerchief. Put the warm solution on two or three times during the day. If they develop until you can see pus in them, sterilize a needle by holding it over a flame, and open them. Granulated lids demand your physician's attention.

BED-WETTING

This annoying condition is fortunately soon out-grown. Children who are mal-nourished, have enlarged tonsils or adenoids, indigestion, or are nervous, are bed-wetters.

First give attention to every detail of the general health, regulate the diet, have no eating between meals, forbid candy and allow only a small amount of sugar with the meals and in the food. The supper should be light with the hearty meal at mid-day. Give no milk or water after four o'clock. If the child is thirsty after that time simply allow sips of water which can be spat out as soon as the mouth and tongue are moistened. Study the diet list in this book for the child from the first to the sixth year, learning what foods to avoid. At ten or the last thing before you retire, take the child to urinate, even if sleeping, thus establishing the habit of

emptying the bladder at a definite time. He will then usually sleep through the rest of the night. Tonics may be necessary such as small doses of Nux Vomica which should only be used on your doctor's advice.

In boys circumcision may be necessary to stop this habit which may be due to the irritation of a long adherent foreskin.

THUMB-SUCKING

Thumb-sucking deforms the mouth and causes the teeth to come in crooked. The hand must be taken from the mouth each time this is done, beginning as soon as the habit starts in your baby. A cot of linen fitted over the thumb or finger and tied on will usually break the habit. In older children paint tincture of aloes or myrrh over the finger ends, as this being bitter will stop both thumb-sucking and nail-biting.

Worms.—Pin-worms, round-worms and tape-worms are the three types children are subject to. Pin-worms are more common, round-worms rare and tape-worms found only occasionally and mostly in older children. The signs are nervousness, grinding of the teeth, restless sleeping, tossing about, complaints of itching around the rectum, picking at the nose and bed-clothes, and at times, severe cases have been known to cause convulsions. In young girls they crawl forward in the vagina producing leucorrhoea, an irrita-

tion which often leads to bad habits. They look like small broken pieces of white or yellowish thread. The treatment is a large dose of castor oil at bedtime, watching the stools next morning for signs of them. The treatment must be persisted in as they are difficult at times to get rid of. Give an enema at bedtime, washing out the bowels, then lay the child on the side and pour six ounces of the Infusion of Quassia into the bowel by attaching to the syringe the No. 18 American catheter, inserted for five or six inches. Have the child remain lying on its side to retain the solution as long as possible, preferably all night. A teaspoonful of table salt in four ounces of warm water is used in the same way with some success but the Infusion of Quassia is surer. Give the child each morning before breakfast from one-half to one teaspoonful of rhubarb and soda, the dose depending on the age, or give compound licorice powder, one-quarter to one-half teaspoonful in warm water.

Round worms are larger, longer and reddish like a small earth-worm. The symptoms are much the same as described above. Give a dose of castor oil and if they are discovered in the stool, clean out the bowels the following night with another dose of oil, and in the morning, an hour and a half before giving any food give one to two grains of Santonin, depending on the age. This is given in a little powder with sugar of

milk. Repeat the dose on the second day omitting the oil at night, omit both for three days and again give the oil and repeat the same treatment for two days. This usually eradicates them entirely. Oil of *Chenopodium*, three or four drops on a lump of sugar, repeated twice a day, for a child after the fifth year, for three days, followed by a dose of castor oil is another measure for getting rid of round-worms.

Tape-worms are of three varieties, coming from pork, beef and fish, and vary in length from ten to fifty feet. The body is made up of flattish, regular segments, white in color. When passed in the stool they look like little pieces of tape. The symptoms are restlessness, considerable colic and a foul breath with an abnormal appetite but a thin, poorly-nourished body. The difficulty is to dislodge the head. Until this is removed the worm keeps growing. The beef tape-worm, which is most common, has a square head showing four suckers and no hooks. Raw beef may contain the eggs. The pork tape-worm, rarely found in children, has a head with four suckers surrounding which is a circle of twenty-six hooks. The fish tape-worm, which is rare, has an oval head with two grooves on the side. The treatment is a big dose of castor oil at bedtime and the next morning two hours before breakfast a half teaspoonful of Oleoresin of Male-fern, which your druggist will prepare for you in an emulsion. Be

sure that the Male-fern is fresh, and the next day keep the child on a very light diet of broth and gruel. When the worm is passed, carefully examine to see if the head has been passed. This can best be done with a magnifying glass. If the head is not present the treatment should be repeated in three or four days. •

BAD HABITS

In young children bad habits start as a result of some local irritation; the cause is a physical one, and not as many mothers fear, a mental or moral one. In boys the irritation usually comes from a tight, adhered foreskin, underneath which annoying secretions accumulate. The opening through the foreskin may be only of pinpoint size and in addition to its causing bad habits, it may result in nervousness, sleeplessness and bed-wetting. In girls, the local irritation is usually from pinworms which have crawled forward into the vagina setting up a leucorrhoea. In young girls leucorrhoea often follows an attack of measles or scarlet fever or diphtheria, anything which causes the system to become run down. At times it is due to a more serious infection, picked up from unclean toilets or sleeping with an adult who has leucorrhoea.

The habit of masturbation in young babies is usually accomplished by rubbing the limbs together or with the hands, and causes the face to

reddden. In older children it causes paleness, shyness, listlessness, poor appetite and the child becomes dull in school, avoiding people, always seeking seclusion. To correct the trouble in girls and girl babies you must first remove the local irritation. Look for pin-worms and if present see that they are removed at once. If leucorrhoea is the cause begin local treatment starting with the sitz bath, in which you dissolve a half teaspoonful of powdered alum in one gallon of warm water in a clean bowl and let the child sit in this twice a day for twenty minutes. Then gently dry the parts, not by rubbing but patting, applying a very little borated talcum powder, dusting it on externally. The discharge may be more severe and persistent and if possible should be examined by your physician under the microscope.

To cure persistent leucorrhoea, get a female glass catheter, which you can keep sterilized by boiling. Make up each time a quart of fresh boric acid solution, a teaspoonful of the crystals to each pint of water, boil five minutes, cool to the body temperature. Place the child on the back in the tub or over a douche pan, the glass catheter gently inserted and a douche of the complete quart given, at least twice a day to be of any value. At times it is necessary to have your druggist furnish you with the Permanganate of Potash crystals. Tell him to weigh out in each

powder sufficient to make a one to five thousand solution when dissolved in a quart of water. Use this as a douche twice a day until this more serious type of leucorrhoea disappears. Tonics and cod-liver oil should be given to build up the general health of the child.

Have the baby wear a thick diaper and over this fold a soft, bulky towel, which keeps the limbs apart and prevents the baby from rubbing them together. If the douche is not used the parts must be bathed twice a day gently with the boric acid solution. Every effort must be made to keep the child's hand away because of the danger of infecting the eyes and causing blindness. The child must sleep alone. At night the hands should be constrained by fastening a tape around the wrists and letting it pass around the neck, fastened about the neck to the nightdress by sewing or a safety pin, short enough so that the hands cannot reach below the waist. Boy babies should be kept clean about the genitals, the foreskin freed so that all secretion can be removed beneath it, and if this is impossible a circumcision is necessary. Use the bulky diaper and restrain the hands at night.

With older children their future health and welfare should be safe-guarded by the parents who should take the children into their confidence and inform them of the true facts of the result of this habit. They should know that a boy be-

comes dull, backward, thin, pale, a mental and physical weakling, easily detected in his habit by all who are familiar with its signs. Every boy desires strength of body and mind and should know that this practice persisted in, in thousands of cases results in insanity. And in the case of girls it commonly renders them barren, and produces physical and nervous breakdown in time. Older children in whom the habit is suspected should have very little meat, nothing containing alcohol, cool shower baths at bedtime, sponging with cool water over the spine, no hot or heavy underclothes or bed-clothes, a firm, hard mattress, and should be encouraged to sleep on side or face. They should have healthy, outdoor exercise, should be made companions of by their parents and teachers, and with helpful instruction to turn their minds upon interesting things to learn and do, will soon overcome this habit.

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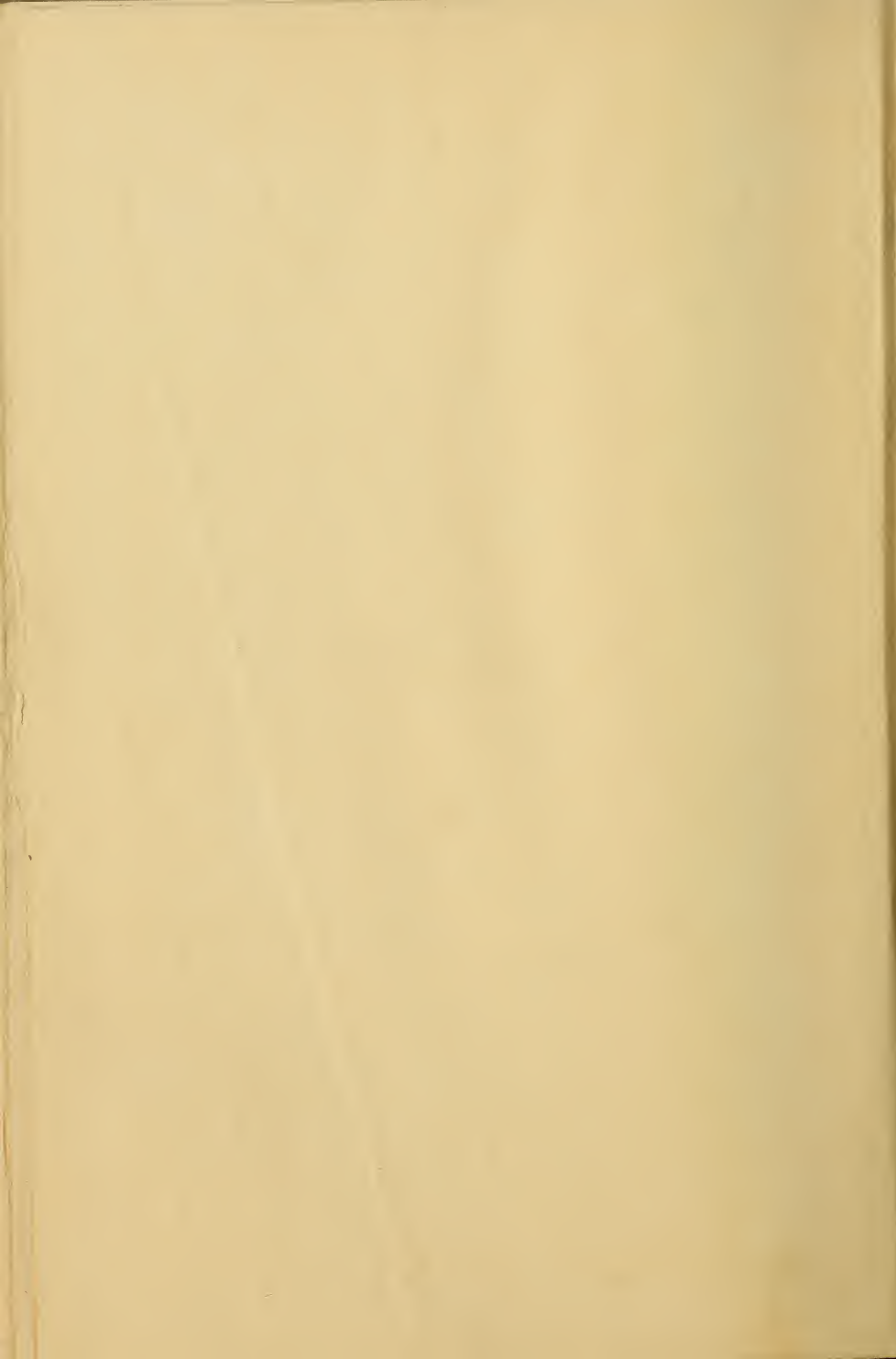
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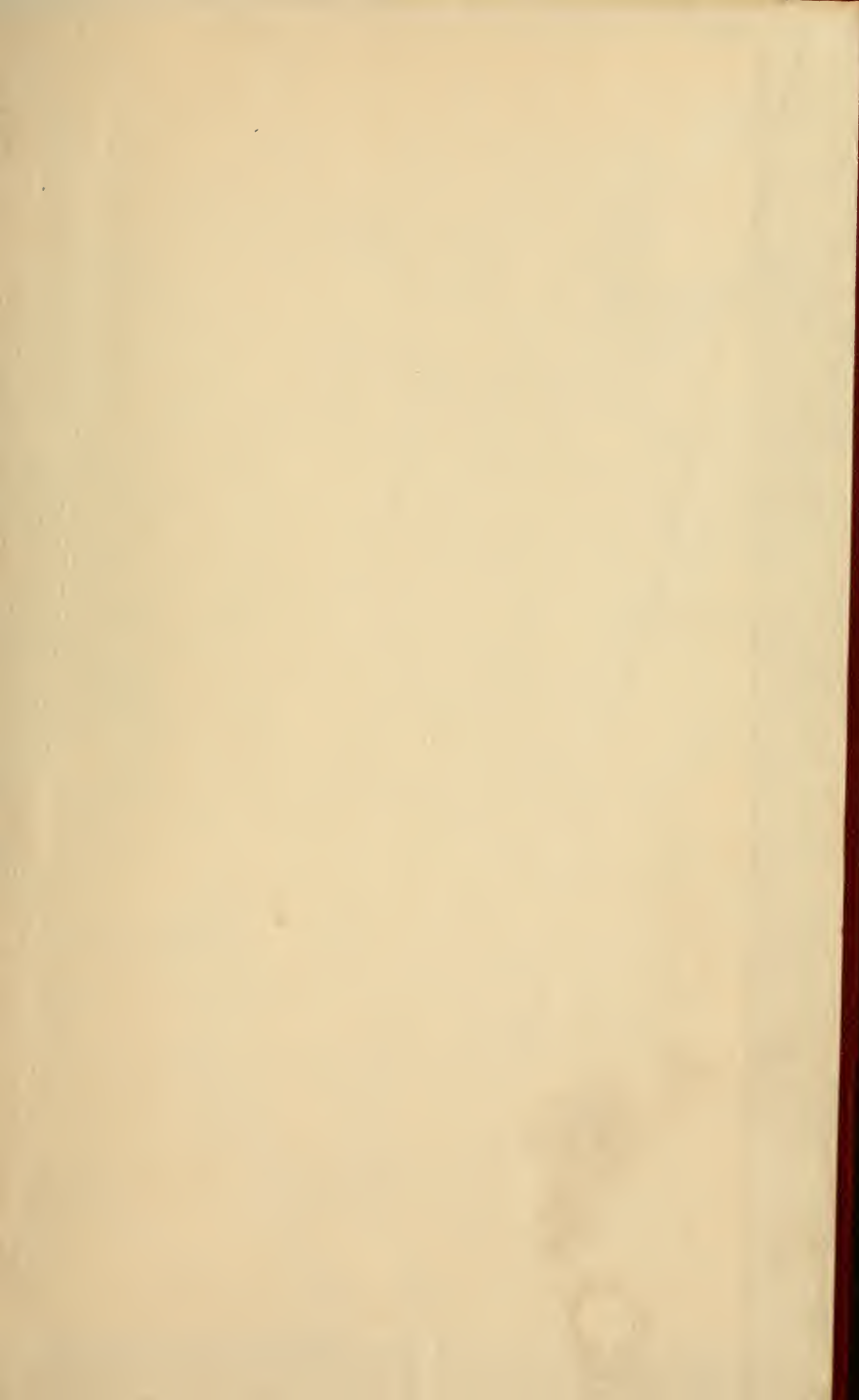
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